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Community Noise Attitudinal Survey Guidelines

Temple Univ.
Philadelphia, PA

Prepared for

Environmental Protection Agency
Washington, DC

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COMMUNITY NOISE
ATTITUDINAL SURVEY

July 1981

U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Noise Abatement and Control
Washington, D.C. 20460

Under Contract No. 68-01-3840

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16. ABSTRACT

This report was prepared by EPA, Office of Noise Abatement and Control, in support of its function to provide technical assistance to communities. It is one of nine which comprises the Community Noise Assessment Manual. The Manual provides a comprehensive and computerized system for assessing the noise problems of a community and then planning a noise control strategy for its abatement. This report provides a procedure for implementing a survey of people's attitudes toward noise. An attitudinal questionnaire to be administered to city residents is provided. The survey technique to be employed is telephone interviewing. Also, provided are the procedures for using a probability sampling technique to estimate the characteristics of the population. A method for analyzing the collected data is discussed.

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INTERVIEWER'S INSTRUCTION MANUAL
COMMUNITY ENVIRONMENT STUDY

I. How to Use This Manual

This manual has been specially prepared for interviewers who are working on the Community Environment Study. It provides background information and describes procedures you are to follow in completing each task. You will also find instructions on how to ask and record answers for every question in the questionnaire.

It is suggested that you read this manual thoroughly, and use it as a reference when needed. Familiarize yourself with the questionnaire until you feel completely comfortable with all of the questions and instructions. The more thoroughly you understand the questionnaire, the easier you will find the interviewing process.

II. Purpose and Plan of the Study

This survey was developed for the Office of Noise Abatement and Control of the Environmental Protection Agency (EPA). It is intended for use in communities where a concern about noise conditions exists.

The survey technique to be employed is telephone interviewing. This technique was chosen because it is relatively simple and can produce accurate and rapid results if correct procedures are employed. The success of the survey in your community will depend on the uniformity in the survey procedures. This manual is your guide. If you and all of the other people involved in the survey follow instructions exactly your survey will be a success. Surveys depend upon the notion that different people are asked the same questions. If the questions asked of people were different, there would be no true basis for comparison. Therefore, please refer to this manual and to your supervisor when questions about procedures arise.

III. Study Materials

In order to complete all of the work assigned, the following materials are provided:

1. Questionnaire - This will be administered to each eligible participating respondent.
2. Call Report/Screening Form - With identifying information, one of these four-page forms must be completed for every household assigned to you.
3. Interviewer's Work Record - This is your permanent record of all work assigned to you during the study.
4. Weekly Progress Report - This form will reflect all work you have done on a week-by-week basis.
5. Payment Record - In order to receive payment, you are required to submit a correctly completed Payment Record each week that you work. It must be accompanied by the Weekly Progress Report Form. The Training Fee Payment Record will be processed for payment at the completion of your assignment according to specifications.
6. Instruction Manual for Community Environment Study - To be used for note taking, studied and referred to whenever needed.

IV. Study Procedures

Assignment

Your assignment will consist of completing Call Report/Screening Forms and conducting telephone interviews. Each Call Report Form will contain the sample telephone number. In most cases, the resident's name and address will appear there also. On the basis of the screening information that you obtain, an eligible member from each of those households may be selected. So that each community is scientifically and correctly represented, there is to be no substitutions of households.

As you call each assigned number, you must record the date, time, and result of that call on the Call Report Form whether or not you found anyone at home.

After obtaining the screening information from a knowledgeable household member who is 16 years of age or older, you will determine who, if anyone, is eligible to be interviewed. (Eligible people must be members of the household, 18 years of age or over, and be primary users of the telephone number that is on the Call Report Form.) When you have selected the respondent by following the selection procedures, you must interview only that person. Again, there is no substitution of respondents. You may be able to interview the respondent on your initial contact or you may have to set up an appointment to call him/her at a more convenient time.

Before beginning the interview, read the statement on the cover sheet of the questionnaire to the respondent, record the time the interview began and conduct the interview.

When the interview is completed, thank the respondent for his/her participation, hang up, and record the time the interview ended. Complete the

Call Report Form. Take time to review the completed questionnaire making certain that all information has been gathered, that it is legible and complete. If anything is missing, call the respondent back and get the missing information.

Place the completed Call Report/Screening Form between the first and second pages of the completed questionnaire.

Completing Your Assignment According to Our Specifications

Completing your assignment according to our specifications requires you to:

1. Conduct all interviews by telephone as instructed.
2. Make every reasonable effort to screen and complete an interview for every case assigned to you, whether in your original assignment or in subsequent assignments and reassignments.
3. Return completed interviews promptly with completed Call Report/ Screening Forms.
4. Correctly complete the Call Report/Screening Forms for each non-interview in your assignment (every non-interview must have a final disposition).
5. Contact the respondents again in order to obtain any information missed at the time of the interview.
6. Meet the study deadline.

Termination

It is possible that, during the course of the field work, or even early in the training conference, you might decide that you do not want to work on this study. If you reach this decision, please alert your supervisor immediately. While we would respect the honesty of this decision, you may not be paid for training having voluntarily removed yourself from the study.

There are also reasons for which you may be terminated at our request. In each of these cases, as well, you would not have completed your assignment according to our specifications, and will not be paid for training:

1. If you did not complete a first interview within 3 days after the training conference.
2. Having a valid reason for not working for a week, you will be given 4 additional days in which to complete at least 1 interview.
3. If the work you do is of such poor quality that it can not be analyzed and has to be redone by another interviewer.
4. If, after validation, it becomes clear that interviews or parts of interviews were not conducted with the eligible respondent.

In the event of termination for any reason, please return assignments and materials.

V. Call Report/Screening Form

Call Report Form

The Call Report Form is the first page of the four page Call Report/ Screening Form. It must be completed for every household in your assignment.

In the upper right hand corner, record your name and identification number. Identifying information for each household will be on each form. The selection table number found on the first page should match the selection table number found on the third page of the form.

On the Call Report Form, you are to record every one of your contacts. Enter the date, time, circle the contact person (I is the informant, R. is the respondent) and the result of each call including the final result. Under Result Code, enter the appropriate code (see Codes for Result of Call under the call record). The word "call" means telephone call and all contacts and interviewing will be conducted by telephone. Although spaces have been provided for 8 calls, you are to make as many as necessary to obtain a final result. Additional calls may be recorded on any blank space on the Call Report Form or on notepaper which should be stapled to the form.

When you call back, vary the times and days when trying to establish contact. For example, if your first call was on a weekday during the daytime, and no one was at home, you should make your second call in the evening. If that fails, make your third call on the weekend during the daytime and so forth. Varying the time and day increases the chances of establishing contact with the household.

A list of the codes describing the result of each call follows: (an asterisk (*) before the result code means that you are required to write a description of the circumstances. Final result codes are codes 1, 4, 5, 6, 7, 23, 24 30, 31, 32, 40, and 41.)

Known Eligibles

The following codes are to be used when you are able to complete the screening and determine that there is a person who is eligible in the household.

Code 1 Completed interview - When you have completed an interview, place the completed Call Report/Screening Form between the first two pages of the completed questionnaire.

Code *2 Appointment made - if the respondent is home but an interview cannot be conducted at that time, record the date and time you are to call back.

Code *3 Call back-Respondent not home/no answer - if the respondent is not home, record date and time you are to call back. Use this code also if there is no answer when calling back, recording date and time of call.

Code *4 Respondent refused - Record all of the details concerning the refusal and your suggestions for overcoming it. No one can be substituted for the selected respondent. Make every effort to interview that person.

Code *5 Respondent away for duration of study - Record the date the eligible respondent is expected to return.

Code *6 Respondent not able to be interviewed - Use this code if the selected respondent is incapable of participating due to an emotional or physical problem. This code is also to be used if there is a language barrier and the respondent does not speak English. Record the language that he/she speaks.

Code *7	Terminated - Use this code if the selected respondent terminates the interview before it is completed. Make every effort to complete this interview. Record all details concerning the termination and your suggestions for overcoming the termination.

Working Number No Screening

The following codes are to be used when you have a working number but no screening takes place.

Code 20	Line busy - Call back at 15 minutes intervals. If a number is continuously busy, check with the operator to determine if it is a working number.
Code 21	Answering service/recorded message - identify yourself by name, who you are representing, and leave a message that you will call again at a given time.
Code 22	No answer - Record date and time of call. Be sure to make your next call during a different time of day.
Code *23	Refused screening - Informant refused screening. Obtain as much of the screening information as you can get. If possible, record the name of the person who refuses and the reason for the refusal. Please give suggestions for overcoming the refusal.
Code *24	Screening not obtained/Not able to be screened - Use this code if informant is incapable of supplying the screening information due to an emotional or physical problem. Use this code also if the informant does not speak English. Obtain as much of the screening information as possible and record the language that is spoken.
Code *25	Call back to screen - if the informant is home but is unable to give you screening information at this time, record date and time you are to call back.

Not A Working or Household Number

The following codes are to be used when you do not have a working or household number.

Code 30 Disconnected/Not in service - if temporarily disconnected, make note of that and call again in a few days.

Code *31 Non-residential - if the phone number is not residential, describe what is at that number, e.g., doctor's office, grocery store, etc.

Code *32 Telephone number outside study area - record the locality.

Known Ineligible

The following codes are to be used when you are able to complete the screening and it is determined that there is not an eligible person in the household.

Code 40 No one over 17 in household - This code is used when it is determined that there is no member of the household 18 years of age or older.

Code 41 No primary user - This code is used when it is determined that there is no member in the household 18 years of age or older who uses the telephone number more than 50% of the time.

Screening and Selection

After dialing each telephone number, you will be asking questions from the Call Report/Screening Form to determine eligibility of the household and to identify the selected respondent. The person answering the telephone may or may not be the respondent selected to be interviewed.

Screening for an eligible respondent starts on page 1 of the Call Report/Screening Form. Circled question numbers indicate that those questions are to be asked of all informants. Ask each question exactly as written. Circle the appropriate code, not the word after receiving an answer to each question. If a termination occurs, thank the informant for his/her time, and complete the Call Report Form.

Q. 1 Read the introduction to the phone answerer and ask Q. 1. If the answer is no, check the number and dial again. Note that there is no code to circle until you dial correctly and reach the number. Then circle code 1 and go to Q. 2. Any household member who is 16 years of age or older who can provide the required information may be the informant.

Q. 2 Record informant's full name.

Q. 3 If you have reached the informant on his/her home phone, skip to Q. 5A. Otherwise ask Q. 4.

Q. 4 If the phone is located at a business establishment, terminate the screening and record on the Call Report Form, code 31. Record type of business, e.g. doctor's office,record shop, grocery store, etc.

Q. 5A While the informant is telling you the address, check it against the address on page 1. If additional information such as apartment designation or zip code is given, record it where the address is recorded on page 1. If the informant refuses the address information, record "Refused" after question 5A and go to Q. 5B.

Q. 5B If the address is located in the designated study area, continue with Q. 6. If not, terminate the screening and record on the Call Report Form, code 32.

Q. 6 Record the number of people living in the household, including the informant.

Q. 7 Read the introductory sentence leading to question 7. Record the number of people age 18 or older who are permanent members of the household. Living in the household means that this is a person's usual residence. Include people temporarily absent on vacation, on a business trip, or in the hospital. Do not include people who live away from home as members of the Armed Forces or as students in school or college. If there is no household member age 18 or older, terminate the screening and record on the Call Report Form, code 40.

QQ. 8,9 On the Household Composition Table on page 3, under the column headed "Household Members' Names," starting with the females first, list all females, age 18 and over from the oldest through the youngest in descending sequential order. That is, you will list the oldest female first, the next oldest female second, the third oldest female third and so forth until all adult females have been listed. List them by their first names. (If the informant objects to using names, list them by letter or number and write a note to that effect on the page). Then list all the males, age 18 and over, starting with the oldest and proceeding through to the youngest.

You will now have a list of all 18 years of age and older members of the household who use this telephone number. Remember, females are listed before males and they are listed oldest to youngest. If two or more members of the same sex have the same age, first try to determine which was born first, then, if necessary, list them alphabetically. (That should be necessary very rarely.)

Q. A For each name recorded, ask what that person's relationship is to the informant and record in the column headed, "Relationship to Informant." When recording about the person you are talking to, record the word "informant."

Q. B When the sex of the person is obvious, circle the appropriate code. When it is not, ask if the person is male or female and circle the appropriate code.

Q. C Ask how old each person was on his/her last birthday and record the age under the column headed "Age."

Q. 10 If there is no other non-business phone with a different number, go to the Household Composition Table and in Q. D, circle code 1 for all people listed, indicating that they are primary users of this phone, then skip to Q. 12. If there is another non-business phone with a different number, go to Q. 11.

Q. 11 In Household Composition Table, for Q. D, circle code 1 for those who use this telephone number more than 50% of the time and circle code 2 for those who don't use this telephone number more than 50% of the time. If none of the listed adults uses this phone more than 50% of the time, terminate the screening and record on the Call Report Form, code 41.

Q. 12 You must check the listing to make sure that all are listed according to directions. This is in preparation for selecting the person who will be interviewed. If the person is incorrectly selected, the interview will be ineligible and another interview must be conducted with the correctly selected respondent.

Q. 13 If there is only 1 eligible respondent, (a primary user of the telephone, age 18 or over,) skip to Q. 15.

Q. 14 If there are 2 or more eligible respondents, (primary users of the telephone, age 18 or over) the following steps must be taken to select the respondent:

A. In the selection table (on page 3 below the Household Composition Table), in column A, circle the total number of eligibles (primary users, age 18 or over), listed on the Household Composition Table and in column B, circle the number below it.

B. In the selection table, the number you circled in column B is the line # of the only person selected to be interviewed in the household. No substitutions are allowed.

C. In the Household Composition Table, circle the respondents' line # and write his/her name in the designated space under Q. 14C.

Q. 15 If the informant is the designated respondent, you will probably be able to conduct the interview immediately. If the informant cannot be interviewed at this time, set up an appointment, record it on the Call Report Form as a code 2, call back at the appointed time and conduct the interview.

If the informant is not the designated respondent, record the respondent's full name in the designated space and ask to speak to him/her. If the respondent is available, read the introduction on the cover sheet and conduct the interview. If the respondent is unavailable, ask for the most convenient time to reach him/her, record on the Call Report Form and code it 3. On page 4 of the Screening Form, record the most convenient times to reach the respondent as well as any other phone number(s) where you could call him/her.

It is, of course, a good idea to establish friendly relations with this intermediary since his/her attitude can help or hinder you in making contact with the designated respondent. Sometimes it helps to explain briefly why you cannot interview someone other than the designated respondent. ("Both telephone numbers and people we interview are randomly selected. This gives us a representative sample of men and women of different ages and different walks of life").

After establishing contact with the respondent, assume that the interview is going to take place then, at the time of the first contact. You may make arrangements to call back at a more convenient time if the respondent suggests this, but accept that situation only at the respondent's initiative. Suggest it yourself only if you feel that otherwise you may not gain cooperation.

If the respondent asks how much time will be required for the interview, tell him or her honestly that the usual length is between 15 minutes and 20 minutes. Do not say that the interview will take only a few minutes.

CASE # 2133
(Office use only)

Interviewer: SALLY COLE

Interviewer ID#: 1244

COMMUNITY ENVIRONMENT STUDY

CALL REPORT AND SCREENING FORM

DESIGNATED HOUSEHOLD NAME: ROBERT WALKER

ADDRESS: 183 WOOD ROAD (STREET) (APT.#)

PHILADELPHIA (CITY) PA (STATE) 19122 (ZIP)

TELEPHONE: (215) 787-7797

SELECTION TABLE 7

SCREENING AND SELECTION

INTRODUCTION: Hello, I am (NAME) from (ORGANIZATION/LOCALITY). We are conducting a survey on the environment and its impact on people in this community. The information from this study will be used for developing better environmental planning.

① Is this (READ TELEPHONE NUMBER)?

(GO TO Q. 2)	Yes	[✓ 1]
(CHECK NUMBER AND DIAL AGAIN)	No	X

CALL #	DATE	TIME	CONTACT PERSON	RESULT CODE	* WRITE DESCRIPTION FOR RESULT CODES 2, 3, 4, 5, 6, 7, 23, 24, 25, 31, 32.
1	10/5	1 AM [✓ PM]	[✓ I] R	3	R NOT HOME. TRY AROUND 7 PM
2	10/5	7 AM [✓ PM]	I [✓ R]	2	R BUSY. APPOINTMENT MADE 10/7 8PM
3	10/7	8 AM [✓ PM]	I [✓ R]	1	
4		AM PM	I R		
5		AM PM	I R		
6		AM PM	I R		
7		AM PM	I R		
8		AM PM	I R		

CODES FOR RESULT OF CALL

KNOWN ELIGIBLE
- 1. Completed interview
- *2. Appointment made
- *3. Call back-R. not home/ no answer
- *4. R. refused
- *5. R. away for duration
- *6. R. not able
- *7. Terminated

WORKING #, NO SCREENING
- 20. Line busy
- 21. Answering service/ Recorded message
- 22. No answer
- *23. Refused screening
- *24. Screening not obtained/ Not able to be screened
- *25. Call back to screen

NOT A WORKING OR HOUSEHOLD #
- 30. Disconnected/ Not in service
- *31. Non-residential
- *32. Telephone # outside study area

KNOWN INELIGIBLE
- 40. No one over 17
- 41. No primary user

[illegible] 18 YEARS OF AGE OR OLDER)

(2.) To whom am I speaking? MICHAEL WALKER
(INFORMANT'S FULL NAME)

(3.) Have I reached you on your home phone?

(SKIP TO Q. 5A)	Yes	[✓ 1]
	No	2

4. Is this phone located at a business establishment?

(TERMINATE)	Yes	1
	No	2

(5A.) What is the correct address of this phone #? (RECORD ON P.1 ANY NEW ADDRESS INFORMATION INCLUDING ZIP CODE)

(5B.) Is this located in (DESIGNATED STUDY AREA)?

	Yes	[✓ 1]
(TERMINATE)	No	2

(6.) How many people live in this household, including you? Be sure to include children and infants. 4
(NUMBER)

In order to know which adult to interview, I have to list all the people 18 or older who live there as permanent members of the household.

(7.) How many people age 18 or older live there? (IF NONE, TERMINATE) 3
(NUMBER)

(8.) (Including yourself) please tell me the first names of all females in the household who use this telephone number and are age 18 or older. Let's start with the oldest. (RECORD IN HOUSEHOLD COMPOSITION TABLE. COMPLETE A-C)

(9.) (Including yourself) please tell me the first names of all the males in the household who use this telephone number and are age 18 or older, starting with the oldest. (RECORD IN HOUSEHOLD COMPOSITION TABLE. COMPLETE A-C)

(10.) Do you have another nonbusiness phone with a different number in this house?

	Yes	1
(CIRCLE CODE 1 IN COL. D & SKIP TO INSTRUCTION 12)	No	[✓ 2]

11. Which of the adults I have listed (READ NAMES) use (READ LISTED TELEPHONE NUMBER) more than 50% of the time? (CODE IN PRIMARY USER COLUMN D)

(TERMINATE)	None	9

(12.) (BE SURE THAT YOU HAVE COMPLETED HOUSEHOLD COMPOSITION QQ. A-D ABOUT EACH PERSON. CHECK THE LISTING IN THE HOUSEHOLD COMPOSITION TABLE TO BE SURE THAT ALL FEMALES AGE 18 OR OLDER HAVE BEEN LISTED FROM THE OLDEST TO THE YOUNGEST AND THEN THE MALES IN THE SAME MANNER. THE TOTAL NUMBER LISTED SHOULD BE THE SAME AS THE ANSWER IN Q. 7. IF ANY ERRORS HAVE OCCURRED, CHANGE THE LINE NUMBERS TO REFLECT THE CORRECT ORDERING.)

(13.) (IF ONE ELIGIBLE (PRIMARY USER, AGE 18 OR OVER), SKIP TO Q. 15)

14. IF THERE ARE TWO OR MORE ELIGIBLES (PRIMARY USERS, AGE 18 OR OVER), FOLLOW STEPS A THROUGH C TO SELECT THE RESPONDENT.

A. IN THE SELECTION TABLE, IN COLUMN A, CIRCLE THE TOTAL NUMBER OF ELIGIBLES (PRIMARY USERS, AGE 18 AND OVER) LISTED IN THE HOUSEHOLD COMPOSITION TABLE. IN COLUMN B, CIRCLE THE NUMBER BELOW IT.

B. IN THE SELECTION TABLE, THE NUMBER CIRCLED IN COLUMN B IS THE LINE # OF THE ONLY PERSON SELECTED TO BE THE RESPONDENT. NO SUBSTITUTIONS ARE ALLOWED.

C. IN THE HOUSEHOLD COMPOSITION TABLE, PUT A CIRCLE ○ AROUND THE RESPONDENT'S LINE #, AND WRITE (HIS/HER) NAME BELOW.

BETTY
(DESIGNATED RESPONDENT'S NAME)

HOUSEHOLD COMPOSITION TABLE

(COMPLETE QQ. A-D ABOUT EACH PERSON AS APPROPRIATE)

A. WHAT IS (PERSON'S) RELATIONSHIP TO YOU?

B. (CODE SEX, OR ASK): IS (PERSON) MALE OR FEMALE?

C. HOW OLD WAS (PERSON) ON (HIS/HER LAST BIRTHDAY?

D. CODE PRIMARY USERS

	QQ.8,9	Q.A.	Q.B.		Q.C.	Q.D.	
LINE #	HOUSEHOLD MEMBERS' NAMES	RELATIONSHIP TO INFORMANT	M	F	AGE	PRIMARY USER OF THIS PHONE	
						YES	NO
[✓ 1.]	BETTY	DAUGHTER-IN-LAW	1	[✓ 2]	26	[✓ 1]	2
2.	MICHAEL	INFORMANT	[✓ 1]	2	56	[✓ 1]	2
3.	ROBERT	SON	[✓ 1]	2	28	[✓ 1]	2
4.			1	2		1	2
5.			1	2		1	2
6.			1	2		1	2
7.			1	2		1	2
8.			1	2		1	2
9.			1	2		1	2
10.			1	2		1	2
11.			1	2		1	2
12.			1	2		1	2

ASSIGNED HU SELECTION TABLE NO. 7

A	TOTAL PERS. AGED 18+	2	[✓ 3]	4	5	6+
B	SELECTED NUMBERS	1	[✓ 1]	1	1	1

15. (IF INFORMANT IS THE DESIGNATED RESPONDENT, CONDUCT THE INTERVIEW:)
OTHERWISE:

According to this form the person to be interviewed is:

BETTY
(RESPONDENT'S FULL NAME)

A. May I speak to (HIM/HER)?

B. (IF ANSWER TO Q. A IS "NO", ASK WHEN IT WOULD BE POSSIBLE TO REACH R. RECORD TIMES AND ALL PHONE NUMBERS BELOW.)

MOST CONVENIENT TIME(S) TO REACH R.	PHONE NUMBER(S) OTHER THAN HOUSEHOLD NUMBER

CASE # 2175
(Office use only)

Interviewer: SALLY COLE

Interviewer ID#: 1244

COMMUNITY ENVIRONMENT STUDY

CALL REPORT AND SCREENING FORM

DESIGNATED HOUSEHOLD NAME: JACK PARKER

ADDRESS: 2302 ASH STREET (STREET) 2A (APT.#)

PHILADELPHIA (CITY) PA (STATE) 19122 (ZIP)

TELEPHONE: (215) 787-8311

SELECTION TABLE 3

SCREENING AND SELECTION

INTRODUCTION: Hello, I am (NAME) from (ORGANIZATION/LOCALITY). We are conducting a survey on the environment and its impact on people in this community. The information from this study will be used for developing better environmental planning.

① Is this (READ TELEPHONE NUMBER)?

(GO TO Q. 2)	Yes	[✓ 1]
(CHECK NUMBER AND DIAL AGAIN)	No	x

CALL #	DATE	TIME	CONTACT PERSON	RESULT CODE	* WRITE DESCRIPTION FOR RESULT CODES 2, 3, 4,5,6,7,23,24, 25,31,32.
1	10/5	1:15 AM [✓ PM]	I R	22	
2	10/5	8:30 AM [✓ PM]	I R	22	
3	10/6	10 [✓ AM] PM	I R	22	
4	10/7	7 AM [✓ PM]	I R	20	
5	10/7	7:15 AM [✓ PM]	[✓ I] R	6	R IS DEAF
6		AM PM	I R		
7		AM PM	I R		
8		AM PM	I R		

CODES FOR RESULT OF CALL

KNOWN ELIGIBLE
1. Completed interview
*2. Appointment made
*3. Call back-R. not home/ no answer
*4. R. refused
*5. R. away for duration
*6. R. not able
*7. Terminated

WORKING #, NO SCREENING
20. Line busy
21. Answering service/ Recorded message
22. No answer
*23. Refused screening
*24. Screening not obtained/ Not able to be screened
*25. Call back to screen

NOT A WORKING OR HOUSEHOLD #
30. Disconnected/ Not in service
*31. Non-residential
*32. Telephone # outside study area

KNOWN INELIGIBLE
40. No one over 17
41. No primary user

(MAY I PLEASE SPEAK TO A PERSON 18 YEARS OF AGE OR OLDER?)

2. To whom am I speaking? JAMES PARKER
(INFORMANT'S FULL NAME)

3. Have I reached you on your home phone?

(SKIP TO Q. 5A)	Yes	[✓ 1]
	No	2

4. Is this phone located at a business establishment?

(TERMINATE)	Yes	1
	No	2

5A. What is the correct address of this phone #? (RECORD ON P.1 ANY NEW ADDRESS INFORMATION INCLUDING ZIP CODE)

5B. Is this located in (DESIGNATED STUDY AREA)?

	Yes	[✓ 1]
(TERMINATE)	No	2

6. How many people live in this household, including you? Be sure to include children and infants. 5
(NUMBER)

In order to know which adult to interview, I have to list all the people 18 or older who live there as permanent members of the household.

7. How many people age 18 or older live there? (IF NONE, TERMINATE) 3
(NUMBER)

8. (Including yourself) please tell me the first names of all females in the household who use this telephone number and are age 18 or older. Let's start with the oldest. (RECORD IN HOUSEHOLD COMPOSITION TABLE. COMPLETE A-C)

9. (Including yourself) please tell me the first names of all the males in the household who use this telephone number and are age 18 or older, starting with the oldest. (RECORD IN HOUSEHOLD COMPOSITION TABLE. COMPLETE A-C)

10. Do you have another nonbusiness phone with a different number in this house?

	Yes	1
(CIRCLE CODE 1 IN COL. D & SKIP TO INSTRUCTION 12)	No	[✓ 2]

11. Which of the adults I have listed (READ NAMES) use (READ LISTED TELEPHONE NUMBER) more than 50% of the time? (CODE IN PRIMARY USER COLUMN D)

(TERMINATE)	None	9

12. (BE SURE THAT YOU HAVE COMPLETED HOUSEHOLD COMPOSITION QQ. A-D ABOUT EACH PERSON. CHECK THE LISTING IN THE HOUSEHOLD COMPOSITION TABLE TO BE SURE THAT ALL FEMALES AGE 18 OR OLDER HAVE BEEN LISTED FROM THE OLDEST TO THE YOUNGEST AND THEN THE MALES IN THE SAME MANNER. THE TOTAL NUMBER LISTED SHOULD BE THE SAME AS THE ANSWER IN Q. 7. IF ANY ERRORS HAVE OCCURRED, CHANGE THE LINE NUMBERS TO REFLECT THE CORRECT ORDERING.)

13. (IF ONE ELIGIBLE (PRIMARY USER, AGE 18 OR OVER), SKIP TO Q. 15)

14. IF THERE ARE TWO OR MORE ELIGIBLES (PRIMARY USERS, AGE 18 OR OVER), FOLLOW STEPS A THROUGH C TO SELECT THE RESPONDENT.

A. IN THE SELECTION TABLE, IN COLUMN A, CIRCLE THE TOTAL NUMBER OF ELIGIBLES (PRIMARY USERS, AGE 18 AND OVER) LISTED IN THE HOUSEHOLD COMPOSITION TABLE. IN COLUMN B, CIRCLE THE NUMBER BELOW IT.

B. IN THE SELECTION TABLE, THE NUMBER CIRCLED IN COLUMN B IS THE LINE # OF THE ONLY PERSON SELECTED TO BE THE RESPONDENT. NO SUBSTITUTIONS ARE ALLOWED.

C. IN THE HOUSEHOLD COMPOSITION TABLE, PUT A CIRCLE ○ AROUND THE RESPONDENT'S LINE #, AND WRITE (HIS/HER) NAME BELOW.

JOAN
(DESIGNATED RESPONDENT'S NAME)

HOUSEHOLD COMPOSITION TABLE

(COMPLETE QQ. A-D ABOUT EACH PERSON AS APPROPRIATE)

A. WHAT IS (PERSON'S) RELATIONSHIP TO YOU?

B. (CODE SEX, OR ASK): IS (PERSON) MALE OR FEMALE?

C. HOW OLD WAS (PERSON) ON (HIS/HER LAST BIRTHDAY?

D. CODE PRIMARY USERS

LINE #	QQ.8,9 HOUSEHOLD MEMBERS' NAMES	Q.A. RELATIONSHIP TO INFORMANT	Q.B. M	Q.B. F	Q.C. AGE	Q.D. PRIMARY USER OF THIS PHONE YES	Q.D. PRIMARY USER OF THIS PHONE NO
1.	ROSE	GRANDMOTHER	1	[✓ 2]	67	[✓ 1]	2
[✓ 2.]	JOAN	MOTHER	1	[✓ 2]	43	[✓ 1]	2
3.	JACK	FATHER	[✓ 1]	2	44	[✓ 1]	2
4.			1	2		1	2
5.			1	2		1	2
6.			1	2		1	2
7.			1	2		1	2
8.			1	2		1	2
9.			1	2		1	2
10.			1	2		1	2
11.			1	2		1	2
12.			1	2		1	2

ASSIGNED HU SELECTION TABLE NO. 3

A	TOTAL PERS. AGED 18+	2	[✓ 3]	4	5	6+
B	SELECTED NUMBERS	1	[✓ 2]	2	3	3

15. (IF INFORMANT IS THE DESIGNATED RESPONDENT, CONDUCT THE INTERVIEW:) OTHERWISE:

According to this form the person to be interviewed is:

JOAN
(RESPONDENT'S FULL NAME)

A. May I speak to (HIM/HER)?

B. (IF ANSWER TO Q. A IS "NO", ASK WHEN IT WOULD BE POSSIBLE TO REACH R. RECORD TIMES AND ALL PHONE NUMBERS BELOW.)

MOST CONVENIENT TIME(S) TO REACH R.	PHONE NUMBER(S) OTHER THAN HOUSEHOLD NUMBER

CASE # 2172
(Office use only)

Interviewer: SALLY COLE

Interviewer ID#: 1244

COMMUNITY ENVIRONMENT STUDY

CALL REPORT AND SCREENING FORM

DESIGNATED HOUSEHOLD NAME: RUTH JONES

ADDRESS: 68 PINE STREET (STREET) (APT.#)

PHILADELPHIA (CITY) PA (STATE) 19122 (ZIP)

TELEPHONE: (215) 787-2554

SELECTION TABLE 11

SCREENING AND SELECTION

INTRODUCTION: Hello, I am (NAME) from (ORGANIZATION/LOCALITY). We are conducting a survey on the environment and its impact on people in this community. The information from this study will be used for developing better environmental planning.

(1.) Is this (READ TELEPHONE NUMBER)?

(GO TO Q. 2)	Yes	[✓ 1]
(CHECK NUMBER AND DIAL AGAIN)	No	X

CALL #	DATE	TIME	CONTACT PERSON	RESULT CODE	* WRITE DESCRIPTION FOR RESULT CODES 2, 3, 4,5,6,7, 23,24, 25,31,32.
1	10/8	8:30 AM [✓ PM]	I [✓ R]	1	
2		AM PM	I R		
3		AM PM	I R		
4		AM PM	I R		
5		AM PM	I R		
6		AM PM	I R		
7		AM PM	I R		
8		AM PM	I R		

CODES FOR RESULT OF CALL

KNOWN ELIGIBLE
- 1. Completed interview
- *2. Appointment made
- *3. Call back-R. not home/ no answer
- *4. R. refused
- *5. R. away for duration
- *6. R. not able
- *7. Terminated

WORKING #, NO SCREENING
- 20. Line busy
- 21. Answering service/ Recorded message
- 22. No answer
- *23. Refused screening
- *24. Screening not obtained/ Not able to be screened
- *25. Call back to screen

NOT A WORKING OR HOUSEHOLD #
- 30. Disconnected/ Not in service
- *31. Non-residential
- *32. Telephone # outside study area

KNOWN INELIGIBLE
- 40. No one over 17
- 41. No primary user

2. To whom am I speaking? RUTH JONES
(INFORMANT'S FULL NAME)

3. Have I reached you on your home phone?

(SKIP TO Q. 5A)	Yes	[✓ 1]
	No	2

4. Is this phone located at a business establishment?

(TERMINATE)	Yes	1
	No	2

5A. What is the correct address of this phone #? (RECORD ON P.1 ANY NEW ADDRESS INFORMATION INCLUDING ZIP CODE)

5B. Is this located in (DESIGNATED STUDY AREA)?

	Yes	[✓ 1]
(TERMINATE)	No	2

6. How many people live in this household, including you? Be sure to include children and infants. 2
(NUMBER)

In order to know which adult to interview, I have to list all the people 18 or older who live there as permanent members of the household.

7. How many people age 18 or older live there? (IF NONE, TERMINATE) 2
(NUMBER)

8. (Including yourself) please tell me the first names of all females in the household who use this telephone number and are age 18 or older. Let's start with the oldest. (RECORD IN HOUSEHOLD COMPOSITION TABLE. COMPLETE A-C)

9. (Including yourself) please tell me the first names of all the males in the household who use this telephone number and are age 18 or older, starting with the oldest. (RECORD IN HOUSEHOLD COMPOSITION TABLE. COMPLETE A-C)

10. Do you have another nonbusiness phone with a different number in this house?

	Yes	[✓ 1]
(CIRCLE CODE 1 IN COL. D & SKIP TO INSTRUCTION 12)	No	2

11. Which of the adults I have listed (READ NAMES) use (READ LISTED TELEPHONE NUMBER) more than 50% of the time? (CODE IN PRIMARY USER COLUMN D)

(TERMINATE)	None	9

12. (BE SURE THAT YOU HAVE COMPLETED HOUSEHOLD COMPOSITION QQ. A-D ABOUT EACH PERSON. CHECK THE LISTING IN THE HOUSEHOLD COMPOSITION TABLE TO BE SURE THAT ALL FEMALES AGE 18 OR OLDER HAVE BEEN LISTED FROM THE OLDEST TO THE YOUNGEST AND THEN THE MALES IN THE SAME MANNER. THE TOTAL NUMBER LISTED SHOULD BE THE SAME AS THE ANSWER IN Q. 7. IF ANY ERRORS HAVE OCCURRED, CHANGE THE LINE NUMBERS TO REFLECT THE CORRECT ORDERING.)

13. (IF ONE ELIGIBLE (PRIMARY USER, AGE 18 OR OVER), SKIP TO Q. 15)

14. IF THERE ARE TWO OR MORE ELIGIBLES (PRIMARY USERS, AGE 18 OR OVER), FOLLOW STEPS A THROUGH C TO SELECT THE RESPONDENT.

A. IN THE SELECTION TABLE, IN COLUMN A, CIRCLE THE TOTAL NUMBER OF ELIGIBLES (PRIMARY USERS, AGE 18 AND OVER) LISTED IN THE HOUSEHOLD COMPOSITION TABLE. IN COLUMN B, CIRCLE THE NUMBER BELOW IT.

B. IN THE SELECTION TABLE, THE NUMBER CIRCLED IN COLUMN B IS THE LINE # OF THE ONLY PERSON SELECTED TO BE THE RESPONDENT. NO SUBSTITUTIONS ARE ALLOWED.

C. IN THE HOUSEHOLD COMPOSITION TABLE, PUT A CIRCLE ○ AROUND THE RESPONDENT'S LINE #, AND WRITE (HIS/HER) NAME BELOW.

____
(DESIGNATED RESPONDENT'S NAME)

HOUSEHOLD COMPOSITION TABLE

(COMPLETE QQ. A-D ABOUT EACH PERSON AS APPROPRIATE)

A. WHAT IS (PERSON'S) RELATIONSHIP TO YOU?

B. (CODE SEX, OR ASK): IS (PERSON) MALE OR FEMALE?

C. HOW OLD WAS (PERSON) ON (HIS/HER LAST BIRTHDAY?

D. CODE PRIMARY USERS

LINE #	QQ.8,9 HOUSEHOLD MEMBERS' NAMES	Q.A. RELATIONSHIP TO INFORMANT	Q.B.		Q.C. AGE	Q.D. PRIMARY USER OF THIS PHONE	
			M	F		YES	NO
1.	RUTH	INFORMANT	1	[✓ 2]	41	[✓ 1]	2
2.	MICHAEL	SON	[✓ 1]	2	18	1	[✓ 2]
3.			1	2		1	2
4.			1	2		1	2
5.			1	2		1	2
6.			1	2		1	2
7.			1	2		1	2
8.			1	2		1	2
9.			1	2		1	2
10.			1	2		1	2
11.			1	2		1	2
12.			1	2		1	2

ASSIGNED HU SELECTION TABLE NO. 11

A	TOTAL PERS. AGED 18+	2	3	4	5	6+
B	SELECTED NUMBERS	2	3	4	5	5

VI. Contacting the Respondent and Starting the Interview

Contacting the Respondent

You will be provided with specific telephone numbers. Your contact should be with any member of the household, 16 years or older.

Be prepared to read your introduction as soon as someone answers the telephone. Although there isn't a magical approach that will work for everyone, we suggest the following:

1. Be positive in your approach. Act as though you expect the phone answerer and the respondent to be interested and cooperative, and in most cases he or she will be.
2. Be positive in your feeling about yourself and what you are doing. The study you are working on is very worthwhile, and should be of interest to the people being interviewed.
3. Take a genuine interest in the respondent. His or her participation is extremely important. Each respondent is unique and irreplaceable, and we value each one's opinions and attitude. Convey that feeling to the respondent.

Answering Questions

Respondents ask questions not only to gather information, but to reassure themselves concerning your legitimacy, or the legitimacy of the study.

While these questions may come up during the interview, they are more likely to occur before the respondent agrees to participate. In any event, answer all questions courteously, honestly, and as briefly as possible. You don't want to "explain" your way out of an interview, or introduce bias by providing more information than the respondent should have prior to the

Preceding page blank

interview. While we do not suggest that you memorize answers to questions which may be asked, you should become familiar with their content and feel confident that you can truthfully respond to inquiries in a convincing and conversational tone.

Reminders: Do not discuss eligibility criteria with the phone answerer.
Do not answer questions that are not asked.
Do not describe specific questions.
Do not mention that the survey is about noise.

Question: Who wants this information?
Answer: The Environmental Protection Agency.

Question: What is it all about?
Answer: We are conducting a survey on the environment and its impact on people in the community. The information from the study will be used for developing better environmental planning.

Question: Why me? How did you get my telephone number?
Answer: Since it would be extremely costly and almost impossible to telephone every household in the community, a scientific sample of households has been selected. Each of these households, including yours, will represent all of the others that have not been selected. Once a household has been selected, no other household can be substituted. Only you may answer for all the households you represent.

Question: Are the questions personal?

Answer: Some people would think they are and others would not. The important thing is that everything be kept confidential and you are never identified with your answers. They are all grouped together with those of other people, and presented in statistical form only.

Question: How long will this take?

Answer: About 15 minutes.

Question: What happens to the information?

Answer: All information that would identify the answers as being you is detached from your answers. When the data are analyzed, your answers will be treated statistically along with other people's so that no individuals are ever identifiable. Only the staff of the study ever has access to the study questionnaires.

Question: Suppose I don't want to be interviewed?

Answer: The interview is voluntary on your part, and you can refuse if you wish. We hope you won't. For the results of the study to be accurate and representative, every person selected to be interviewed should be interviewed. I am not permitted to substitute any other household for yours, or any other person for you. We can start the interview and if you don't want to answer a question, you can tell me that.

Question: What are you selling?

Answer: I assure you that we are not selling anything. We are only intersted in your opinions.

Question: Can't I answer for him/her? (asked by someone other than the respondent)

Answer: No, I'm sorry but you can't. I have to interview the person selected. I have to get answers for the selected person in (his/her) owns words because many of the questions are about actions, opinions or feelings which only that person can answer.

Question: I'm busy now. Can we do this some other time?

Answer: Of course. The opinions of busy people like you are very important. I'll call this evening or tomorrow if it's more convenient for you.

Starting the Interview

At the time you begin the interview, record the case number and telephone number on the questionnaire cover as they appear on the Call Report/Screening Form. Record your name and ID number and the time just before you ask the first question in the questionnaire.

If the respondent is interrupted after you have begun the interview, arrange a convenient time to call back. Record the time of the interruption next to the question you were about to ask and note the reason for discontinuing. Be sure to record the interruption on the Call Report Form and code it 2. In the questionnaire, record the time when you began again.

VII. Concluding The Interview

At the conclusion of the interview, thank the respondent for his/her participation. Be sure to record the time ended in the designated place on the last page and transfer that time to the front cover. Also record the number of interruptions, if there are any.

After hanging up the phone, take a few minutes to glance over the questionnaire making sure that all appropriate questions have been asked and answered. It will be much easier to call again immediately and explain that you missed a question or two, than it will be later when the office returns the questionnaire and asks you to obtain the missing information.

Complete the Call Report Form by recording code 1 for "Completed Interview", the date and time. Then place the Call Report/Screening Form between the first two pages of the completed questionnaire.

VIII. General Interviewing Techniques

In order to insure uniformity, these procedures are to be followed:

1. Record everything in ink. If a correction or change needs to be made, cross out what has been recorded,and then record the correct response. Never erase. The completed questionnaire is the only record we have of your interaction with the respondent and we must see the interviewing situation as it took place.
2. Everything must be recorded during the time you are conducting the interview. At the conclusion of the interview, skim the questionnaire to make sure you have asked all of the appropriate questions. If you have neglected to ask a question, call back the respondent immediately and ask the question(s). We must have a record of what actually took place, not your impression of what the respondent might have said to you.
3. Questions with circled question numbers are to be asked of every respondent.
4. Interviewer instructions are in capital letters, enclosed in parenthesis and not to be read to the respondent. These are instructions to you. Words written in lower case letters are to be read to the respondent.
5. When you are instructed to skip a question, do so, and draw a diagonal line (slash) through the skipped question.
6. Read each question slowly and distinctly, exactly as it is worded and in the order in which it appears in the questionnaire.
7. When a question ends with a question mark, stop at that point, without reading any of the categories that might follow.
8. When the stem or lead-in to a question ends with a colon, read all of the answer choices up to the question mark, pausing briefly after each.
9. Circle the numerical pre-codes (not words) when recording responses to closed-end questions.

10. When a ("Specify") category has been provided, circle the appropriate code and record the verbatim response, probing when necessary, to obtain a complete answer.

11. When the "(Specify)" category has not been provided, the question must be answered in terms of the categories given. Repeat them, if necessary, until the respondent chooses one of them.

12. For questions with alternative responses be sure the respondent is able to remember all of the responses. For example, you have read the respondent a statement. Then you ask the respondent if he is not at all annoyed, slightly annoyed, moderately annoyed, very annoyed, or extremely annoyed. The respondent says "I am somewhat annoyed". You must read the alternative responses again in their entirety.

13. Marginal comments should be recorded every time R significantly qualifies, or changes an answer. We do not want you filling up the page with meaningless asides, but we need to know when a comment would change the way a response would be interpreted and coded. If a respondent refuses to answer a question, please make a marginal comment to explain the omission.

14. Only two abbreviations may be used: D.K. (don't know) and R (respondent). If there is even a chance for confusion, record in their entirety names of places and months. Do not use numerical equivalents for months, and when respondents do, always say the name of the month as you are recording it for confirmation by the respondent.

15. The Open-ended Question. For one question in the questionnaire, you will have to write-in an answer. Q. 3 asks: "What three things do you particularly like about your area?" In this case, all respondents will give open answers (that is, answers in their own words) and you will have to record what they say verbatim. You must record the respondent's

replies in the very words the respondent uses. This is what is called verbatim recording. If the respondent is talking too fast ask him/her to please slow down as you are recording everything he/she is saying. Avoid silences by repeating what he/she has just said to you. Do not summarize or paraphrase the respondent's answers since it often results in distortion and obscures the respondent's answer. Consider the difference between the following two examples of recorded responses to Q. 3.

Verbatim Recording	Summarized Recording
I like the natural environment around here - the trees, the landscape, the parks. It makes living here more pleasant.	The parks are pleasant.

The summarized recording lacks the true intensity and lustre of the respondent's reply. The problem is even more serious as the paraphrased answer actually distorts the meaning of the respondent's reply. Be sure that you write down exactly what the respondent says for the open-ended questions.

Probe this open-end question using non directive probes until completed and meaningful responses have been obtained. Record an X each time you probe. The following are examples of possible responses and appropriate probes: What three things do you particularly like about your area?

Possible Responses	Appropriate Probes
1. I like it here.	1. Please explain what you mean when you say you like it here. or You like it here?

2. It's very convenient.	2. What do you mean by convenient? or Convenient?
3. The neighborhood is changing.	3. In what way is it changing? or Please explain that.

If there is not adequate space to record the full answer make a note that the response has been continued on another page (where there is blank space) and write the question number where you continue recording.

16. Closed-Ended Questions - The remainder of the questions are closed-ended (or pre-coded). In this type of question you will simply circle the appropriate answer. Each closed-ended question has its own pre-coded numerical system. For example, Q. 5 asks: Would you say your area is:

Very quiet	1
Quiet	2
Noisy or	3
Very noisy	4

If the R says "Very Quiet", then you will circle the 1; if he/she says "Quiet" you will circle code 2, and so forth.

17. When R gives a range in response to a question requiring a numerical answer, probe for one number. Record the first response, an X to show you probed, and then the second response.

18. Control the interview. Limit irrelevant conversation and do not deviate from the questionnaire. If R. is very talkative, steer him/her back to questionnaire as discreetly as possible. It is up to you the interviewer to make the interview the focal point of the interaction.

19. Remain neutral throughout the interview, showing neither approval or disapproval. Never give your own opinions. Guard against putting the respondent into the position of pleasing you rather than being truthful. Emphasize that there are no right or wrong answers and that we are only interested in respondent's opinions. Foster a candid expression of revelant thoughts by the R. by projecting a willingness to listen and a non-judgmental acceptance of what the respondent says.

20. All questions are to be read exactly as written. Do not interpret for the R. If the R. states that he/she doesn't understand what you are asking, record that in the margin to the left of the question and continue by asking the next question.

21. Never assume that you know how R. will answer any given question. Therefore ask all questions.

22. If you are not sure how to code a response, record what the respondent says verbatim in the margin of that question. Too much information is preferable to too little.

23. Read questions clearly and distinctly and at an appropriate pace.

24. Allow R. adequate time to organize his/her thoughts and respond.

25. Record R's. relevant comments verbatim. Any comments that could affect our understanding or interpretation of an answer should be recorded verbatim in any blank space near the question.

26. Probe "don't know" and ambiguous responses. When R. says, "I don't know" or answers something other than one of the response categories, probe for clarification. Accept "don't know" after R. has been allowed enough time to think about the question and is still unable to give a different answer.

27. Listen attentively and with sensitivity to what is being said. Know when questions should be repeated and recognize when there are discrepancies to be resolved.

28. Give additional information only when R. asks for it and because it is appropriate. Your main purpose is to obtain information, not to provide it.

29. Eliminate sources of distraction in your location. Call only when the radio and television are off and you can give undivided attention to your work.

IX. Study Forms and Procedures

A. Interviewer's Work Record

Before you begin working on your assignment, list all case numbers and telephone numbers assigned to you on this form. As you complete an interview or obtain some other final disposition, record that final result in column 3, and the date the case is completed in column 4.

This is your permanent record of all work assigned to you during the study. Keep it up to date because you will be referring to it as you prepare your weekly progress report. Add to the list any reassigned cases, and keep track of them in the same way as your original assignment.

B. Weekly Progress Report

Start by recording your name and ID number. Date the form on each Sunday as this form will reflect all work you have done Monday through Sunday. On the left side, record the case number, date completed, and final result. On the right side, record all work still in your possession, the case number, total number of calls you have made to date (record 0 if no call has been made) and the code for your most recent call.

This form is to be submitted each Monday with a Payment Record.

C. Payment Record for Completed Interviews

The Payment Record for completed interviews is to be sent to the office with the Weekly Progress Report. The number of completed interviews shown on the payment record must be the number we have received in the office for that record period. Before we can pay you for interviews, we must have them in the office.

If you submit a payment record claiming completed interviews that have not been received, the payment record will be changed to reflect work actually in house, and you will be sent the corrected amount.

For this study you will be paid an all inclusive rate of $5.00 per completed interview which include all time and expenses. On the Payment Record, identify each completed interview by case number. A Payment Record must be submitted each week you work, and all of your Payment Records must be submitted within two weeks after the completion of the study. Training will be paid for at the completion of the study if all work has been completed according to our specification. You will receive $45.00 for the 1 day of training.

INTERVIEWER'S WORK RECORD

COMMUNITY ENVIRONMENT STUDY

Name SALLY COLE ID# 1244

Case #	Telephone #	Final Result	Date Completed
2133	787-7797	1	10/7
2175	787-8311	6	10/7
2172	787-2554	1	10/8
2142	787-6380		
2149	787-5212		

WEEKLY PROGRESS REPORT

COMMUNITY ENVIRONMENT STUDY

(To be submitted each Monday with Payment Record)

Name SALLY COLE ID# 1244 Date 10/12/80

WORK RETURNED DURING THIS WEEK

Case #	Date Completed	Final Result
2133	10/7	1
2175	10/7	6
2172	10/8	1

WORK STILL IN YOUR POSSESSION

Case #	Total Calls To Date	Result of Most Recent Call
2142	1	2
2149	0	

PAYMENT RECORD FOR COMPLETED INTERVIEWS

PRINT Information on These Lines	FIRST NAME SALLY	INITIAL T	LAST NAME COLE	STUDY NUMBER
	STREET ADDRESS 25 SOUTH STREET		APT. NO.	SOCIAL SECURITY NO. 070-30-7892
	CITY PHILADELPHIA	STATE PA	ZIP CODE 19122	AREA CODE - PHONE NO. 215-787-8791

RECORD ONE WEEK'S WORK, MONDAY THRU SUNDAY, USING ONE LINE FOR EACH DAY'S WORK

1	2	3	4	
DATE	NO. OF INTER-VIEWS COMP.	IDENTIFY COMPLETED INTERVIEWS	AUTHORIZED EXPENSES	
			AMOUNT	SPECIFY
10/3		TRAINING CONFERENCE	35	
		PRACTICE INTERVIEW	10	
		TRAINING		
		FEE ONLY		
		DO NOT WRITE IN THIS SPACE		

AUTHORIZED BY:

I Certify That The Above Charges Are Correct.

Signature of Interviewer: Sally Cole

ID# 1244

Date: 10/3/80

INTERVIEWER: Do Not Write In Shaded Areas

INTERVIEWS	RATE	TOTAL

TOTAL EXPENSES

9-13	14-25	26-30	35-50	51-57	62-67
	REPORT NO.	DATE	ACCOUNT NO.	AMOUNT	CHECK NO.
19999	T&E 41706				

APPROVAL	DATE	TOTAL

W FORM 8/74 - #2 REV. 8/76

PAYMENT RECORD FOR COMPLETED INTERVIEWS

PRINT Information on These Lines	FIRST NAME SALLY	INITIAL T	LAST NAME COLE	STUDY NUMBER
	STREET ADDRESS 25 SOUTH STREET		APT. NO.	SOCIAL SECURITY NO. 070-30-7892
	CITY PHILADELPHIA	STATE PA	ZIP CODE 19122	AREA CODE - PHONE NO. 215-787-8791

RECORD ONE WEEK'S WORK, MONDAY THRU SUNDAY, USING ONE LINE FOR EACH DAY'S WORK

1	2	3	4	
DATE	NO. OF INTER-VIEWS COMP.	IDENTIFY COMPLETED INTERVIEWS	AUTHORIZED EXPENSES	
			AMOUNT	SPECIFY
10/7	1	CASE # 2133	5.	
10/8	1	CASE# 2172	5.	
		DO NOT WRITE IN THIS SPACE	AUTHORIZED BY:	

I Certify That The Above Charges Are Correct.

Signature of Interviewer: Sally Cole

ID: 1244

Date: 10/12/80

INTERVIEWER: Do Not Write In Shaded Areas

INTERVIEWS	RATE	TOTAL
		.

TOTAL EXPENSES: .

9-13	14-25	26-30	38-50	51-57	62-67
	REPORT NO.	DATE	ACCOUNT NO.	AMOUNT	CHECK NO.
19999	T&E 41707			.	

APPROVAL	DATE	TOTAL

N FORM 8/74 - #2 REV. 8/76

X. Individual Question Specifications

In addition to the general instructions, the following are additional instructions for various individual questions that require special comment.

NOTE: The numbers in very small print found throughout the questionnaire are used for coding purposes and should be disregarded by you.

A. Introduction on the Cover Sheet

Read first paragraph to the respondent unless the respondent is the person who gives you the screening information and has already heard the introduction.

Read the second and third paragraphs to every respondent before asking the first question:

Q. 1 Record answer in terms of years or months rounded to nearest year or month.

Q. 2 Read each possible response and circle the appropriate code. If the respondent talks in terms of something being good and another thing poor, repeat the question emphasizing the overall quality of the area. If the R. answers "It's between good and fair", ask "Is it closer to good or closer to fair". Only one code can be circled.

Q. 3 Here we are interested in three things the respondent likes about his/ her area. If asked, the area is defined as being within a few blocks of his/her home. The respondent will tell you the thing about the area that he/she particularly likes. Record the items verbatim. You should try to get the respondent to mention three items. For example, if the R. doesn't give any or gives only one or two, say "What other thing do you particularly like about this area"? Record an X to show when you have probed. Do not give examples or suggest things. After probing for three, if R. cannot give three go on to the next question. If R. mentions more than three, list them in order using the space under the question.

Q.4A&4B Read all the items in Column A before you read Column B. For example, in Q 4A-B after reading the initial questions ("As I read the ..."), you would then say:

"Would you say that Traffic Congestion is a problem?" (Respondent answers "Yes" or "No")

"Would you say that Polluted Water is a problem?" (Respondent answers "Yes" or "No")

"Would you say that Noise is a problem?" (Respondent answers "Yes" or "No")

"Would you say that Crime is a problem?" (Respondent answers "Yes" or "No")

"Would you say that Run-Down Sections in Need of Improvement is a problem?" (Respondent answers "Yes" or "No")

"Would you say that Unclean Air is a problem?" (Respondent answers "Yes" or "No")

"Would you say that Lack of Parking Space is a problem? (Respondent answers "Yes or No")

"Would you say that Inadequate Public Services, e.g. Fire or Police Protection is a problem?" (Respondent answers "Yes" or "No")

In other words, you must read each and every item, one by one, prefacing your remarks with: "Would you say that (...) is a problem?" inserting each item listed for (...) as you read, and then circle the appropriate code. While this may sound repetitious, it is the only way of standardizing the questions for the respondent. If you started to abbreviate your questions, then the respondent might simplify his or her answers (e.g., "Just put me down for 'No' for all these."). Therefore, be patient and simply read the list through, item by item, carefully. Be sure not to add any inflection in your voice that might indicate that one item is more or less important than any other.

After Column A has been read entirely, then read through Column B if there are any "Yes" answers in Column A. Column B is read for only those items for which "yes" was answered in Column A. For example, in the above example, if the respondent answers "Yes" to Traffic Congestion, Noise, and Crime, you would ask: "How serious a problem is Traffic Congestion?" "Would you say it is not very serious, moderately serious, very serious, or extremely serious?" (Respondent gives answer) and you would circle appropriate code. "How serious a problem is Noise?" Would you say it is not very serious, moderately serious, very serious, or extremely serious?" (Respondent give answer) and you would circle appropriate code. "How serious a problem is Crime?" "Would you say it is not very serious, moderately serious, very serious, or extremely serious?" (Respondent give answer) and you would circle the appropriate code. You do not read items for which the R. answered "No" in Column A. So for each "Yes" answer in Comumn A, you must read the items for Column B, prefacing the item with "how serious a problem is (...)?", again, inserting the appropriate item for (...).

You must have either a code 3, 4, 5, or 6 circled for each "Yes" answer in Q. 4A.

Q. 5 If R. says his/her area is quiet or noisy depending upon the time of day, urge the R. to generalize by saying "Well, taking everything into account" or "Generally speaking" and repeat the question.

Q. 6 We have defined the word annoyed meaning to be disturbed, stressed or upset by the repeated occurrence of noice. The answer categories are a scale of annoyance from Least to Most. It is important to read the definition of annoyance slowly so that the R. understands it before answering the question.

Again as in Q. 5, if R. is annoyed at certain times of the day, apply the same rule as above and probe for a general answer. If R. is not at all annoyed by noise, circle code 1, slash through question 7 and ask Q. 8. Otherwise, ask Q. 7.

Q. 7 This question must have a code 1 or code 2 circled for each of the items, a, b, c, and d. Ask "Does noise in your area annoy you from 7 a.m. to noon?" After respondent answers yes or no, circle the appropriate code and ask, "Does noise in your area annoy you after 12 noon until 6 p.m.?" Circle the appropriate code and continue in the same manner with c and d.

Q. 8 Follow the procedure used for Q. 7, circling a code 1 or 2 for each of the items a-f. Preface each item with "Does noise in your area interfere with (...)? For item f, if noise does not interfere with any of the respondent's other activities, circle code 2. If respondent mentions some activity that noise in his/her area interferes with, circle code 1 and record R's verbatim description of those activities.

Q. 9 Ask this question in the same way as the previous question circling code 1, 2, 3 for each of the items, a-e. Code 3 is circled when the respondent cannot make up his/her mind.

Q. 10 If the respondent says "yes" or "Noise affects my health" or "Noise makes me very nervous" etc., circle the code for "yes". If the respondent answers "no" circle the code for "No". If the respondent thinks it might be true, circle the code for "Maybe". If the respondent cannot make up his or her mind, circle the code for "don't know".

Q. 11 First, read the introduction to the respondent, and then the main question "During the past year, were you not at all annoyed, slightly annoyed, moderately annoyed, very annoyed, or extremely annoyed by noise from (...)?" Insert each item listed for (...). For each of the items, circle the appropriate code before asking about the next item. For the first few items, you should read the question slowly, possibly even repeating the 5 responses-"not at all annoyed", "slightly annoyed", moderately annoyed", "very annoyed", "extremely annoyed". (Note: As you read the responses, you must read all of them so as not to bias the respondent). You could suggest to the respondent that he/she record 5 responses so he/she can refer to them in answering each item. After you have completed the list up to q, ask r: "What other source of noise annoyed you during the past year"? Record any and all sources mentioned verbatim. For each source mentioned, ask "Were you not at all annoyed, slightly annoyed, moderately annoyed, very annoyed, or extremely annoyed by noise from (source)"? and circle the appropriate code. If the respondent does not mention any other source, circle the box next to "no other source" that contains the 6 zeroes so that we know that you asked the question.

Q. 12 What we are looking for here is a verbal or written complaint to a local official. Signing a petition does not count. If the answer is yes, circle code 1 and skip to Q. 14. If the answer is no, circle 2 and ask Q. 13.

Q. 13 Emphasize "felt like" in this question and circle either code 1 or

Q. 14 Read this question emphasizing "noise control program" and "reducing noise levels". Circle the appropriate code. If the respondent answers Yes, go to Q. 15. If the respondent answers No, skip to Q. 16.

Q. 15 The respondent is being asked on a yearly basis, how much in additional taxes he/she would be willing to pay for each member of his/her household for a noise control program. This question is asked in its entirety, pausing briefly between each category. Only one code is to be circled.

Q. 16 Read the main question. Then read each item slowly emphasizing the underlined words circling code 1, 2 or 8 depending upon the answer. If the respondent asks how the program would be funded, say "The program would be funded by the community".

Q. 17 Record respondent's age. If respondent give you a range, such as "between 20 and 30", record that. If a general answer such as "over 20" is given, try to narrow it to a 10 year range by asking "Are you between 20 and 30 years of age?" Remember to record verbatim and mark an X if you used a probe.

Q. 18 Read the question emphasizing you completed. Circle the highest grade in school that the respondent completed. After the respondent has given an answer, ask: "Did you complete that grade?" If the respondent says "No", then ask: "Did you complete (The Previous Grade)?" Ask in this way until you are sure of the highest grade completed by the respondent. If the respondent quit school in the 10th grade but passed his/ her General Education Development test

(GED) that is the equivalent to a high school degree and therefore grade 12 is to be circled. If the respondent was educated in another country's educational system, ask:

1. "What country was that in?"
2. "What level of schooling was that?"
3. "How many years of education had you completed by then?"
4. "What age were you when you finished?"

Be sure to write the answers to these questions down verbatim. Coders will determine how to handle this later. If the respondent indicated that he or she attended college for more than 8 years, circle "OR MORE." If the respondent replies that he or she has a B.A. or an M.A. degree, ask: "How many years of college have you had?" DO NOT ASSUME that a B.A. degrees automatically takes 4 years.

If unsure how to code, record in the margin what the R. says verbatim.

Q. 19 Read this question slowly, in a calm matter-of-fact tone. You will find that most people do not mind being asked income questions, if they feel that the study is legitimate and that the information is confidential. If a respondent is not sure whether to answer or not, you can reassure him or her by saying: "As I've said, all information is strictly confidential. No information on individuals will be released. Only information about the community as a whole will be given out." It is important that the respondent indicates an income group that includes the following:

1. All income from all family members living in the same household. For example, if a respondent has a son or daughter living away from the household and earning a separate income, this does not count.

2. Income from unrelated persons in the household should not be included. For example, if the respondent is a houseowner and there is a renter living in the household, the renter's income is not part of the estimate. Any rent the renter pays, however, would be a part of the estimate.

3. Income from all sources should be included. This includes income from wages, salaries, interest, dividends, rent, pension, social security and so forth. The respondent ought to know the information because every year tax returns must be filled out.

4. Income should be estimated before taxes, not after.

5. The time period to be considered is 1979, not this year.

6. We want total annual income, not weekly or monthly income.

After the respondent has responded, ask: "Does that include everyone in your family who lives here? Is that before taxes or any deductions?" If the respondent does not know or is uncertain, ask: "What would be your best guess?" It is important that you code the information down in a matter-of-fact way and go on to the next question.

Q. 20 We are looking for the number of existing different telephone numbers in the home, and not the number of extensions of the primary telephone number. Circle the appropriate code. If four or more, circle 4 and record the specific number of telephone numbers next to "Specify".

Q. 21 Record the address in full. If asked why the address is needed, explain that a certain percentage of interviews will be verified to maintain quality control of your interviewing. Reassure the respondent that the answers to the questionnaire will be kept completely confidential and that only the results for the community as a whole will be presented.

Q. 22 This question is aimed at getting the respondent to sum up his/her opinions on noise change in the past year. Circle the appropriate code. If the respondent has not lived in the community long enough to answer, circle code 0 for not applicable.

Record the time the interview ended and thank the respondent warmly for having participated in the study.

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MANUAL OF SAMPLING PROCEDURES

COMMUNITY ENVIRONMENT STUDY

DRAFT FOR REVIEW

AUGUST 12, 1980

DRAWING THE SAMPLE

1. Introduction

In any survey, researchers need to know whom to interview. There are many methods available for selecting the sample, i.e., the people to interview. Whatever method is chosen, the primary goal is to have the sample accurately represent the population from which it is drawn. By "population" we mean the group of people who we want to talk about. Only in this manner, can sample estimates be used to provide information about the population.

Basically, there are two categories of samples:

1. Probability samples
2. Nonprobability samples

Probability samples are ones in which every member of the study population has a known chance of being selected. Members are chosen by a random process; employing a random process reduces the likelihood of introducting a biased selection technique. Also, because all members have a chance of selection and those sampled are chosen at random, the researcher can use probability theory to estimate the accuracy and representativeness of the sample.

Nonprobability samples select members through some purposive technique. Representativeness can not be assured, nor can the accuracy of the sample be measured. Nonprobability methods usually have selection bias and there can be no assessment of sampling errors. Sampling errors are the measures or the margin of error associated with a sample and how accurately it represents the intended population. Although some unskilled researchers use nonprobability techniques and then infer population characteristics from their sample data, it is not correct. One of the few times that nonprobability samples can be used is to test either a questionnaire or some interviewing technique. Otherwise, they should not be used.

It is only through the use of probability sampling techniques that sample estimates can be rightfully used to estimate the characteristics of the population. Therefore, the proceedure discussed in the following pages yields a probability sample of the study population.

Deciding on How to do the Interview

Having decided on doing a probability sample, there is a choice of three primary ways of gathering the data: in-person interviewing, telephone interviewing, or a mail survey. Each technique has its advantages and disadvantages. To decide among the three alternatives, the researcher usually weighs cost and time considerations against both the kind of questions being asked and the purpose of the study.

Cost and time limitations are often critical; rarely do unlimited funds exist which can be used over lengthy time periods. Also, it is often necessary to gather the data over a short period of time to insure consistency in the data. Finally, since many survey results are used as input for policy decisions, the data must be current.

There are varying opinions regarding the advantages and disadvantages of the three alternative interviewing methods; costwise, going from most expensive to least, the methods can be ranked as in-person, telephone, and mail. The first two are usually more expensive, because they require hiring and training interviewers. Yet, because both have direct contact with the respondent, it is believed that they can best motivate the respondent to consent to the interview and answer the questions honestly and completely. Where there is a personal interviewer, there is usually more flexibility; answers can be probed and the respondent can most easily tell her or his own story. Since the interview occurs with one person, there is spontaneity of response. Future questions are not known. Also, since interviewers are reading the question, respondents who are illiterate or disabled can usually complete the interview.

Mail surveys do have some advantages, however, over both the in-person and telephone methods. Mail is usually much cheaper, can cover a wide area, ask sensitive questions more easily, and the respondent can choose the interviewing period. Other advantages are that it usually takes less expertise and less personnel to field a mail survey and because no interviewers are involved, the format of the mail questionnaire often lends itself to a more efficient coding scheme.

Weighing the purpose of the survey against the realities of cost and time, the researcher must decide the most appropriate method. In order to conduct community surveys on noise in a timely and cost-efficient manner, telephone interviewing represents the best alternative.

The Telephone Interview

As described earlier, telephone interviewing shares many of the advantages of in-person interviewing, as both methods rely on interviewers. However, the two methods are not the same. The primary advantages of telephone over in person interviewing relate to time and costs savings. Telephone interviewing is usually quicker and less expensive, as there is no interviewer travel. A large area can be covered, as sample selections do not have to be grouped geographically (clustered) for interviewer efficiency. If the telephoning occurs at a central site, further cost savings are realized, as the supervision is more stringent and fewer supervisors are needed.

There are two disadvantages of telephone interviewing. First, all households do not have telephones. Conflicting information exists about which households do not have telephones; however, since recent figures show that 96%* of all residences have phones, the extent and confounding implications to the survey results are minimized. Also, it is most likely that any differences that do exist are related to either demographic characteristics or some specific group membership. Unless these are critical to the survey questions, little bias will result in limiting the sample to households with phones.

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*U.S. Bureau of the Census. Statistical Abstract of the United States: 1979 Washington, D.C., 1979. Note that this figure is reported as being a "slight overestimate" of the actual proportion.

The second disadvantage is that less rapport is established via a telephone contact than an in-person contact. There is therefore more of a chance that the respondent will not trust the interviewer, increasing the possibility of refusing the interview, terminating the interview, or refusing to answer certain questions. Yet, if care is taken in establishing the rapport, and the interview is short and without many personal or threatening questions, there should be little difficulty in using the telephone mode. In this case, we know that people do not find the community environment questionnaire to be threatening.

Before proceeding with the instructions, a brief overview might be useful to the reader. In the first section, three areas of concern are discussed, and solutions proposed. Much of the material discussed may not prove to be critical to the user of this manual. It has been presented, however, to lend logic and order to the sampling instructions. We feel that the users of this manual need to know what the areas of concern are and how to resolve conflicts, in addition to knowing how to draw the sample. Understanding the process should help in applying the specific techniques which must be followed if a sample is to provide solid representative results.

In the second part, the strategies and methods of sample selection are discussed. This particular section is devoted to sampling from a telephone book, and is keyed to a worksheet in the appendix. Note that the examples in part 3 are taken from the worksheet which is completed. The next section discusses sampling households using random digit dialing. Final sections include respondent selection, how to use a random numbers table, and what prior work must be done before a telephone sample of a state can be drawn.

The reader is cautioned that the sampling component of the manual contains fairly technical methods, which must be applied carefully and consistently. The reader is urged to read each section once, then, using the appropriate worksheet, follow the instructions in the text. In this manner, an accurate probability sample will be selected.

2. Decisions

2.1

Prior to selecting a sample, there are three decisions that must be made. The first is to define the study population, the second is to decide how many interviews are needed, and the third is to estimate the sampling fraction based on the sizes of the sample and study population. These are not easy decisions to make, and we recommend that they be made after consultation with a sampling statistician or other survey expert. The guidelines given here can be tailored to meet the specific needs of any survey, once the sampling decisions have been resolved.

2.2

The first decision involves the definition of the study population, with regard to the existence of a telephone. Since telephone interviewing is the survey mode, the study population is limited to residents of housing units with phones. The decision which must be made is whether or not to limit the study to households with listed phones or to include all households with phones, listed and unlisted. If the survey is limited to the former, sample selection can easily be made from a source such as the telephone book. If the survey includes all households, then random digit dialing (see section 4) must be used to some extent. Random digit dialing is a costly method of sampling, with many complexities. Should this procedure be used as either the only sampling frame or as a supplement to a telephone directory sample, a statistician or survey expert needs to be involved. For most studies, a telephone directory is an adequate sampling frame. Though biases exist, sampling from this source is convenient and simple. The major bias inherent in this frame is the exclusion of people with unlisted numbers, and their common characteristics.

There is some evidence to suggest that there are higher rates of unlisted phones among single females, residents of center cities, the rich and famous, members of certain occupations, and the poor. None of these, however, are excluded totally, and bias may be minimal.

There is one group, however, that is systemmatically excluded from the directory. Those are the movers into the community whose numbers are not currently published in the most recent directory. Yet, because the survey goal is to access noise problems in the community, short term residents may not be able to give adequate answers. By excluding movers, there may be no detrimental effects to the conclusions of the survey. For the reasons we have mentioned, we recommend that the survey be limited to households with listed phones, unless consultation with a statistician or survey expert is possible.

2.3

How many interviews are needed? This usually depends on the complexity of the analysis and the desired level of precision. For analysis purposes, in a simple survey where one wants to examine the entire sample as a whole, 200 interviews are sufficient. If, however, comparisons between two or more subgroups are needed, such as comparing men to women, blacks to nonblacks, old to young, more interviews are required. For any one comparison, a simple rule is to have 200 interviews in each subgroup. If men and women were being examined, a total of 400 interviews should be obtained.

If, however, one of the subgroups is much smaller than the other, the total number of interviews may exceed a reasonable number which can be completed within the existing time and cost frames. Let's take as an example a comparison of blacks and nonblacks in a city which is one-eighth black. If 400 interviews were completed, 350 would be with nonblacks and 50 would be with blacks. If we were to apply the rule that 200 were needed in each subgroup, this would increase the sample size to 1600 interviews, 200 with blacks and 1400 with nonblacks.

In most instances, this would provide an excess number of interviews with the larger subgroup. To prevent or reduce this excess, we can change the rule and require 100 interviews with the smaller subgroup whenever there is a large discrepancy between the sizes of the subgroups. Although this procedure would reduce the number of total interviews by half, to 800, this is still a sizable number.

To maintain the minimum of 100, and yet reduce the total number needed, the smaller subgroup can be oversampled. Oversampling implies getting more interviews than would be expected by chance with any one subgroup, given a total number of completed interviews. To accomplish this disproportionate sampling, a number of techniques can be employed. Two of the most popular are:

1) To locate the areas where the smaller subgroup resides and select more households from these areas.
2) To select households equally, but use different eligibility criteria on the screening forms. That is, on one type screening form, only

members of the smaller subgroup can be selected for interviewing while on the remaining forms, any member of the study population can be selected. Although this procedure requires screening out members of the study population because they are ineligible on one form, it does produce the desired number of interviews.

Even though these methods provide means of reducing the total number of interviews while yielding a sufficient number with the small subgroup, there are difficulties in applying them. Both methods require input from a sampling statistician; with the first method, the statistician must compute the sampling rates in the residential areas while in the second method, the statistician must calculate the numbers of each kind of screening form. Both methods require careful monitoring of the completion rates for the subgroups; any major deviation from the desired numbers can be adjusted, given accurate and up to date result rates. Also, whereas the first method requires accurate designation of residential areas, the second method requires careful checking of the eligibility requirements on each type of screening form. During the analysis, a weighting system must be applied to adjust for the disproportionate sampling. Obviously, before deciding to oversample a subgroup, many procedures must be worked out.

The minimum numbers presented above have been set to yield minimum precision levels. When one conducts a survey, the purpose is usually to describe the study population from the information obtained from the sample. That is, the researcher wants to know how the population value compares to the sample estimate obtained. Although the sample estimate is not likely to be exactly the same as the population value, if expressed as a range, it could estimate the population value. For example, 30% of the sample might say that traffic noise prevented them from sleeping. The researcher wants to infer a population value from this sample estimate. To do this, the estimate can be expressed as a range; rather than saying 30%, the result is expressed as 30% ± 10%. The true population value would be expected then to be between 20 and 40 percent.

The size of the range is dependent upon 3 factors:

a. The sample estimate

b. The number of completed interviews

c. The probability level

The sample estimate and number of interviews are obtained from the survey results. The probability level is set by the researcher. This level states how many times the researcher is willing to be wrong, or conversely, what percentage of the time the estimate will be correct. The probability level can be set at any number; standard practice sets it at either 90 or 95 percent.

The relationship between the probability level and range affects what conclusions can be made from the survey results. There is an inverse relationship between the probability level and range; improving one makes the other one less reliable. If the probability level is low, for example 80%, then the range becomes smaller and more precise. When the probability is low, however, the researcher doesn't have much confidence in the sample results. By raising the probability level, i.e., to 95%, the range also widens, making the estimate less precise. Then, although the researcher is confident of the results, the range is large.

To resolve the conflicting influences of the range and probability level, the researcher can manipulate the sample size. At a given probability level, the range will improve as the size of the sample gets larger. Hence, a desired range and probability level can be obtained by completing a set number of interviews.

Researchers tend to determine the level, range, and number of interviews based on how the study results are to be used. If policy decisions are involved, the probability level is set at a high number; before spending funds, researchers want to make sure the sample results are accurate. However, if the results are used only to describe the population, then the level may be set lower, to make the range smaller and the estimate more precise.

Presented below are the maximum sizes of the range for 4 sample sizes at two probability levels. Hence, for a given sample estimate of a given size, the actual range will not exceed the table value.*

	n=100	200	500	1000
95%	.098	.069	.044	.031
90%	.082	.058	.037	.026

The table above illustrates the relationship between the range, probability level and number of interviews. First, notice that for a given sample size, the range is smaller at the 90% level than at the 95% level; this shows the inverse relationship between the probability level and the range. For a given probability level, the range decreases as the sample size increases. By manipulating these three numbers, the researcher can determine the precision of the sample.

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*The table values were calculated from the following formula, based on the standard error of a proportion:

Range= $\pm z\sqrt{\frac{pq}{n}}$,where z=the standardized score representing the area under the normal curve for a given probability level. When 95% level, $z=1.96$, at 90% level, $z=1.645$

p=proportion of sample having a characteristic

q=(1-p), proportion of sample not having the characteristic

n=number of completed interviews

For these calculations, p and q were each set to .5, which maximizes the variance.

We have recommended 200 interviews, to insure a maximum range of ± 7% at the 95% level.* If 40% of the sample replied that there were no annoying noise problems, then we would estimate that the population value is with a confidence of 40 ± 7% (i.e., 33% to 47%) with a probability of 95%.

It should be noted that analyzing differences widens the range over that of analyzing the sample as a whole. For example, suppose there was a sample of 400, divided into two subgroups of 200 each. The range at 95% level would be ± .10, rather than .07.**

If more detailed comparisons are desired, then the number of interviews conducted should be increased. As a rule of thumb, for each subgroup, 200 interviews are needed. Hence, if two age groups were to be analyzed by sex, there would be 4 subgroups, suggesting a sample of 800 interviews.

2.4

Having decided upon the number of interviews and on the study population the final decisions can be made; these relate to sample size, population size, and the sampling fraction.

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*Depending upon the actual values of p and q, this range will decrease to some extent.

**For differences, the range is equal to:

$$\text{Range} = \pm z\sqrt{\frac{p_1q_1}{n_1} + \frac{p_2q_2}{n_2}},$$

where p_1, q_1, n_1 =numbers of first subgroup

p_2, q_2, n_2 =numbers of second subgroup

2.4.1

In any survey, one needs to estimate the number of households to contact, in order to complete the desired number of interviews. Conditions that affect this number must be taken into account in making your estimate:

1) the proportion of phone numbers that will be working household numbers
2) the proportion of working numbers that will be contacted successfully
3) the proportion of households that will be eligible
4) of the contacted eligible households, the proportion that will yield interviews

By estimating these proportions, multiplying them together, and dividing the number of interviews by this product, the sample size is obtained. To estimate the proportions, various techniques/rules may be employed.

2.4.1.1

For working household numbers, a range can be estimated by selecting pages at random from a telephone book and counting how many are businesses. Then, the telephone company may provide information on the number of phone disconnects. Or, a few columns could be randomly selected, and the people called, to see how many (the proportion) are working household numbers. The best guess, depending on the locale, is that between 80-95% should be working numbers.

2.4.1.2

On most surveys, all selected households are not screened. Residents may be away on vacation, may be out of the house during attempted contacts, or due to misdialings where no one is reached, the number may never be correctly dialed. Depending upon the duration of the interviewing period, this estimate could be between 85% and 95%.

2.4.1.3

The proportion of eligible households is most easily estimated using population/household figures, obtainable from census publications. If the only eligibility criteria is that one resident must be 18 or older, most households will have an eligible. If, however, there is oversampling where some eligible households are excluded, this will affect the overall eligibility rate. Also, if a single phone book has more than one community listed in it, and the other communities are either mixed in or are not distinguishable from the designated community where the study population resides, then non-eligible households exist. These non-eligible households can be eliminated or screened out, but the proportion of eligible households needs to be estimated.

The easiest manner for calculating this proportion is to add the population in each community together and then to divide this total into the population of the eligible community. The resulting figure gives a rough estimate of the proportion of households in the directory which are in the study area, and are therefore eligible. If the now eligible communities are distinguishable, then phones in non-eligible households can be excluded, just as are businesses, at the time of sample selection. If, however, the noneligible communities cannot be identified by either their phone exchange or some kind of community designation, then non-eligible phone numbers can be eliminated during the screening period. The screening form verifies both the address and location of the phone number. If the address is not within the study boundaries, the screening is simply terminated. Although this requires additional screening, it should not exceed reasonable costs, unless the proportion of eligible households is very low.

If oversampling or large porportions of non-eligible households are encountered, consultation from a survey expert/statistician should be sought.

For this reason, assume all households are eligible, except those without a person 18 or older. Given that this will be a very small proportion, estimate that 98% of households are eligible.

2.4.1.4

Lastly, the number of eligibles who respond to the interview will be affected by interviewer expertise and persistence, community approval of the survey, and the interviewing time period (both the length and time of year). A conservative estimate would be 75%, with a more likely result being 80%.

2.4.1.5

Having calculated the estimates, the product of these rates can be obtained. Since 3 of the 4 rates are stated in ranges, a high and low product should be computed. The high product always chooses the largest number, while the low always uses the smallest number. The following are obtained:

Low	(Proportion of)	High
.80	-working household numbers	.95
.85	-numbers contacted	.95
.98	-eligible households	.98
.75	-eligibles who respond to the interview	.80
.4998	Product	.7076

Hence, the size of the sample ranges from n/.7076 to n/.4998. If 400 interviews were desired, from 400/.7076 = 565 to 400/.4998 = 800 telephone numbers would have to be selected. Although the actual number of selections needed will probably lie in this range, it is always a good idea to select a reserve sample.

2.4.1.6

A reserve sample is an additional sample of telephone numbers which is used only if the estimated rates are lower than expected. Then, either parts or all of the reserve can be used to augment the main sample so as to insure completing the number of desired interviews. The reserve sample is most easily selected at the time of main sample selection. A total sample, therefore, is selected and then randomly, a reserve is selected out. Usually, the size of the reserve sample is a percentage of the best estimate of the number of selections needed. If there is a single best estimate, a general rule to apply is to select a 25% reserve; if there is a range for the best estimate, then select 10% more of the upper bound of the range. The reserve sample would then be equal to the difference between this number and the lower bound, or main sample.

The previous example can be used to illustrate this point. In this example, between 565 and 800 phone numbers were needed to complete 400 interviews. Since 800 is the upper bound, 10% of this is 80. Hence 800 + 80 = 880 is the total sample size. The lower bound is 565; the main sample is equal to 565, the reserve (880 - 565) = 315. The total sample of 880 should be sufficiently large to guarantee the completion of 400 interviews, with the actual sample size being between 565 and 880.

2.4.2

Having estimated the total sample size required, the next step is to calculate the size of the study population. Since housing units are the sampling units, the study population is described in terms of household residents. Then, depending on whether or not all households or only those with listed phones are included, the population is further defined. Whichever definition is used, the appropriate number of households needs to be estimated. This information might be available from the telephone company, or, if a city, cross directory exists, this will give the number of residences with phones. Another means for estimating this figure is to estimate it from the telephone book: multiply the number of pages by the number of columns per page by the number of lines in each column and subtract an estimate of the number of listed businesses, blank lines, and second phones in a single household.

2.4.3

Once the sample size (SS) and population size (PS) have been estimated, the sampling fraction (SF) can then be calculated.

SF = 1/f = SS/PS = 1/(PS/SS)

This number provides the base of sample selection.

3. Strategy and Method for Sampling Telephone Books

3.1

If the study population is limited to residents of households with listed phone numbers, then a telephone book is a good sampling frame. Most phone books are printed on a yearly basis and have few errors. Also they are printed in a consistent format, so that each page has a set number of columns, and most columns have the same number of lines. These characteristics of currentness, accuracy, and consistency are important requirements for a sampling frame.

To reduce bias, sampling frames need to have a complete ennumeration of eligibles, with no duplicate, blank, or non-eligible entries. Although the phone book does have some blank lines, these can and are adjusted for in the sampling fraction (they are excluded from the estimate of the study population).

Likewise, the phone listings include non-household numbers (businesses), and may contain numbers which lie outside of the sample area, but these too are adjusted for in the estimate of the study population. Some duplicates exist, since some residences have more than one phone, but these are corrected during screening. Lastly, depending upon the method of sample selection, there should be no biasing order of eligibles in the sampling frame. Although the phone directory enumerates persons in alphabetical order, and columns of persons will be selected, we assume that people in one column have little in common. Where there are ethnic last names, this assumption may not be exactly right for a single column, but over the total sample, there should be little bias. Overall, the sample will represent the total study population.

The instructions that follow have been devised for individuals who are not sampling experts. The procedure is simple, and if the steps are carried out as specified, there should be no major difficulties encountered. This procedure will yield a probability sample of telephone numbers, and because we assume that the columns have a heterogenous composition, all statistics based on simple random sampling can be used. Note that the numbers presented in the text are the numbers obtained for the sample of Concord, N.H.

3.2

There are five steps in selecting a telephone sample:

1) Determine the size of the sampling frame:
   a) the number of lines per column
   b) the number of columns
2) Determine whether to include all lines in a selected column or part of a column

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3) Apply the sampling fraction, and determine the number of columns to select

4) Select columns and, if necessary, lines in columns

5) Designate main and reserve samples

The processes involved in completing each of the above mentioned steps are presented below.

3.2.1

To determine the size of the sampling frame, the number of eligible telephone numbers needs to be estimated. This may be obtained from the telephone company or, if available, from the city cross directory. If neither of these sources can provide the information, the size can be estimated by calculating the number of entries in the telephone directory and subtracting from it an estimate of ineligible entries. Initially, simply count the number of lines in a column. Although the number of lines in any one column may vary, it should be easy to determine the maximum number possible per column. Next, since the number of columns on a page is the same for all pages, simply multiply the number of residential pages by the number of columns per page by the number of lines per column. The resulting figure indicates the number of entries. Subtract from this an estimate of the number of blank, business, and ineligible lines. The final figure gives the size of the frame.

3.2.2

Although we are assuming that people in one column are different from one another, we will limit the number selected from any one column. The rule to follow is that if the number of lines per column is 50 or less, then all numbers in that column will be selected. If there are more than 50, then half of the numbers will be selected. The former will be referred to as 'the small column' sample, the latter as the 'large column sample'.

3.2.3

To apply the sampling fraction, simply divide the total number of columns (J) by the denominator of the sampling fraction, or the "f". If it is a small column sample, the resulting number is the number of columns to select. If it is a large column sample, then the resulting number has to be multiplied by "2", to get the number of columns to select. If the number of columns to select is not a whole number, that is, there are numbers to the right of the decimal, then an additional step is required to determine the actual number of columns to select. The number of columns needed is equal to either the number to the left of the decimal or, the next larger number. Suppose it is a large column sample and that there are 364 columns and the sampling fraction is 1/47; the number of columns to select is 364/47 = 7.745 X 2 = 15.490 (note, this has been rounded to the thousandths place - a sufficient number of decimal places to carry out the fraction). The number of columns to sample is either 15 or 16. In order to know whether to round up or down, a random number is used, based on the numbers to the right of the decimal. If the random number is smaller than the decimal number, round up. Otherwise, round down. In the example, 490 is the decimal number. Therefore, select a 3 digit random number (see instructions in section 6). If it is between 000 and 489, round up and select 16 columns; otherwise, if it is from 490 to 999, round down and select 15 columns. By using a random number, the correct probability is maintained in selecting the right number of columns. In the example given, there is a probability of 490/1000 of having 16 columns, and conversely, a 510/1000 probability of having 15 columns.

3.2.4

Having determined the number of columns, the actual selections can be made. A random numbers table will provide the basis of sample selection. Depending upon the total number of columns, simply select random numbers of the same number of digits. These random numbers will be the column number selected. Using the above example, there were 364 columns in the sampling frame. To select columns, 3 digit numbers would be selected, from 001 to 364. Random numbers greater than 364 are excluded; also, if the same random number is selected twice, simply discard it the second time its picked and select another one.

Continue this process until the sample of columns is selected. If it is a small column sample, the sampling process is complete. All blanks, duplicates, and ineligible numbers should be excluded from the selected columns, while all remaining telephone numbers should be included in the sample. If it is a large column sample, then 1/2 of all selected columns will need to be sampled. To accomplish this in a random manner, select a single digit, from 0 - 9, from the random numbers table for each selected column. If the single digit is even (zero is considered to be even) then select even numbered lines 2, 4, 6, 8, etc. If the single digit is odd, then select the odd numbered lines, 1, 3, 5, etc.

3.2.5

The reserve sample can easily be designated in a random manner. Number the selections in the total sample, starting with one. Although the obtained sample size (SSA) should be equal to or approximate the total sample size (SS), sometimes it may be different. The difference could be caused by miscalculations in the size of the study population or the proportion of listings that are not eligible (businesses, blanks, or recognizable households outside the study area). Whatever sample size is obtained (SSA), recalculate the reserve by subtracting the main sample size from the actual sample obtained. Then, divide the recalculated reserve sample size (RSA) into the actual sample size (SSA). The resulting number is the interval (y).

The interval will probably be fractional, (y = SSA/RSA) with numbers to the right of the decimal. Round the number so that there are 2 numbers to the right of the decimal. Next, select a random number that has as many digits as the interval, including the numbers to the right of the decimal. Place the decimal in the RN to the same number of digits as the interval. If the interval is a four-digit number, with two digits to the right of the decimal, then a four-digit random number would be selected. It would then be read as a number with two digits on either side of the decimal. Add the interval to the random number; then, keep adding the interval to the resulting sum until the total sample size is exceeded. The result sums to the left of the decimal are the selection numbers of the reserve sample. Note that if the random number was less than 1, then the first selection is the first sum. (Random number plus the interval.) When the random number is at least 1, then the random number is the first selection.

In our example, the total sample size was 782, the reserve was 217. Assume that 782 selections were actually obtained. The interval is calculated as:

$$y = 782/217 = 3.604$$

Rounded to 2 decimal places, y = 3.60. A random three digit number from 001 to 360 is needed, and 160 was obtained from a random numbers table. Since 1.60 is not less than 1, it is the first selection. Adding the interval, the following result sums are generated:

1.60, 5.20, 8.80, 12.40, 16.00....768.40, 772.00, 775.60, 779.20, 782.80

Reading the numbers to the left of the decimal, the reserve sample are those selections numbered:

1, 5, 8, 12, 16....768, 772, 775, 779, 782

If a random number of less than one, i.e., 089, were selected, then the result sums would be:

(.89 + 3.60) = 4.49, 8.09, 11.69....

The reserve selections would be columns:

4, 8, 11....

Circle the reserve selections, in order to distinguish them from the main sample.

4. Random Digit Dialing

4.1

When the study population cannot be limited to households with listed phones, or if there is no current telephone directory available for the study locale, then the sample can be selected using random digit dialing. Random digit dialing is a method which randomly selects/generates the ending four digits of a telephone number. Since the exchanges (first three digits) can be obtained for each study area, selecting random endings generates the telephone numbers in the sample. The exchanges can be obtained from either the phone company, or are documented in the front of telephone directories. The random endings are obtained from a random numbers table, by selecting groups of 4 digit numbers (0000 to 9999). Random digit dialing does reach unlisted numbers and those listed numbers that do not appear in the telephone directory (usually new numbers). Although the sampling for random digit dialing is quite simple, using the resulting sample is difficult. The major problem is only 1 in every

4, or 1 in every 5 numbers dialed yields a working household number. Obviously, screening costs and time would increase due to the wasted effort of dialing non existent or business numbers. Random digit dialing used as a sampling frame, then, has many non-eligible, duplicate, and blank elements.

If random digit dialing is used, convert the sampling fraction from

SF = 1/f

to:

SF = 10,000/f

Divide the "f" into the 10,000; the resulting number is equal to the number of four-digit random endings which must be selected from a random numbers table. The reason why the sampling fraction is converted is to compensate for the low "hit rate" of random digit dialing. After the correct number of unique random endings are selected, they are then added to all exchanges in the study area. Hence, if there are 20 exchanges in the study area, each of the selected endings would be added to them, generating the phone numbers to be called. Since the sampling fraction is calculated on the basis of the population and sample sizes, the above procedure adjusts for whatever number of exchanges that exist in an area.

When the resulting sample is completed, divided it into 20 segments. To accomplish this, select a ramdom number from 01 to 20. Number each generated phone number from RN to 20, 1 to 20, etc. Each of the 20 segments is thus defined. The sample should then be assigned in segments. Since the segments were randomly created, we suggest that phone numbers in segments 1 thru 10 be initially given to the field. Calculate the actual hit rate from this portion of the sample, when there are final results for about 75% of the phone numbers. Using this figure, determine how many more phone numbers are needed, and assign the necessary number of segments.

Use as many segments as are needed. If the selected sample fails to yield the desired number of interviews, repeat the selection process; select more random endings, generate new numbers, form segments, and assign however many are needed.

4.2

There are two methods which, if employed, possibly reduce the number of wasted dialings. The first, suggested by Sudman,* improves the efficiency of random digit dialing through the use of telephone directories. Essentially, it creates more probable banks of working numbers, based on those that are in the telephone directory. A random selection of phone numbers is selected from the directory, and all non household numbers excluded. The exchange plus the first digit is used to create a bank while random 3 digit numbers generate the actual telephone numbers. Banks are used in the proportion they were obtained. Hence if one bank was obtained twice as often as another, there would be twice as many phone numbers generated for that bank.

A second method relies on city cross directories. A cross directory lists phone numbers and addresses by street. Also, for each exchange, all listed numbers are given in numerical order. If a cross directory exists for a study area, the phone listing by exchange can be used. Not only are business exchanges identified, but also, the listings can be checked for entire missing sets of numbers within any exchange. Besides checking for missing sets, the generated random number can be examined; if it is listed, then call. If it is not listed, but numbers which are around the random number are listed, then call.

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*Sudman, Seymour. The Uses of Telephone Directories for Survey Sampling. Journal of Marketing Research, 10, 1973, 204-207.

It may be an unlisted number. If the random number is not listed, nor are any of the surrounding numbers, don't call. It probably is in a set of unassigned, non-working numbers.

These methods reduce the number of calls. However, both require additional, time consumming steps. If random digit dialing is used, extra costs and time will have to be absorbed.

5. Respondent Selection

On many surveys, more than one eligible can live in each household. In order to select one respondent without bias, a random technique must be applied. This technique must insure not only that there is a random selection in each household, but also, that the random procedure exists across the entire sample. Only in this manner will the sample approximate the study population on demographic variables. Although many techniques have been used, few actually insure that the second requirement is met, and samples fail to represent the proportionate makeup of the study population. One technique, developed by L. Kish,* does satisfy both requirements. The technique is based on a series of eight selection tables which designate respondents according to the total number of eligibles in each household. Eligibles are listed in a enummeration table according to age within each sex. Then, depending on the total number in this enummeration table, one is designated as the respondent. Once the selection is made, no substitutions are allowed.

The eight selection tables differ both on who is designated as the respondent and how many of each type is assigned. One of the eight tables is assigned randomly to each screening form. Essentially, for every 12 telephone numbers, the eight forms are assigned so that four occur twice, and the remaining are represented once. Table 5-1 presents the eight selection tables, A-H. The number(s) below each of the eight tables in brackets indicate their distribution among 12 screening forms. Note that the top row of the table indicates the total number eligible, while the bottom row designates the line number of the selected respondent. (See "Line #" column on household composition table in screening call report form.)

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*Kish, Leslie. Survey Sampling. New York: John Wiley and Sons, Inc. pp. 396-401.

To assign the selection table, select a random number (RN) between 01 and 12. Beginning with this number, consectively number all sample telephone numbers from RN to 12, 1 to 12, 1 to 12, etc. Then, assign the corresponding selection table to each sample telephone number. For example, all telephone numbers that have been assigned number 6 should have selection table H. Two processes can be used to complete the assignment procedure. One way would be to print labels, each with a different selection table. The labels can then be affixed to the screening forms, by matching the number designation (1 through 12) to the letter. Hence, one screening form is printed to which one of eight labels is applied. The second method has the selection table on the screening form, so that eight different screening forms are printed. Then, the screening form is matched to the number designation. Both methods require that the proper match is made between the selection table and the 1 to 12 designation number. The decision on which method is used should be based on whichever one is easier. Both have been successfully used in the past.

TABLE 5-1

SELECTION TABLE A

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	1	1	1	1	1
		[1, 7]			

SELECTION TABLE B

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	1	1	1	2	2
		[2]			

SELECTION TABLE C

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	1	1	2	2	2
		[8]			

SELECTION TABLE D

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	1	2	2	3	3
		[3, 9]			

SELECTION TABLE E

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	2	2	3	4	4
		[4, 10]			

SELECTION TABLE F

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	2	3	3	3	5
		[5]			

SELECTION TABLE G

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	2	3	4	5	5
	[11]				

SELECTION TABLE H

IF NUMBER OF ELIGIBLES IS:	TWO	THREE	FOUR	FIVE	SIX OR MORE
THEN INTERVIEW PERSON ON LINE #:	2	3	4	5	6
	[6, 12]				

6 Random Number Tables: How to Find and Use

Random number tables can often be located in back of statistics books or in a book entitled A Million Random Digits.* Essentially, these tables list digits in random order, such that no consistent pattern exists. Often, to make use of these tables easier, the digits are presented in groups of 2-3-4 numbers. These are, however, meaningless groupings and can be ignored if the number of digits in the needed random number are not the same as the size of the grouping. To use a random number table, the user must first determine the number of digits needed in the random number. This is determined by the range of the interval in which the random number must exist. The number of digits needed in any random number is equal to the number of digits in the largest number in the interval. For example, suppose one needs a random number in the interval of 1 to 966. The largest number in the interval is 966 which has 3 digits; as such, a 3 digit random number is needed, from either 000 to 965, or 001 to 966 inclusive. For illustrative purposes, the first will be used.

Starting at the top of the random number table, go across the first line, reading the numbers in groups of 3; the first grouping which is between 000 and 965 - inclusive - is the random number. Circle this number to show it has been selected. Any group which is not in the desired interval should be crossed out. Presented below is part of a random numbers table. On the first line, the first three digit grouping is 251. Since this is between 000 and 965, it is the selection. Circle it.

25 19 64 82 84	62 74 29 92 24	61 03 91 22 48	64 94 63 15 07	66 85 12 00 27
23 02 41 46 04	44 31 52 43 07	44 06 03 09 34	19 83 94 62 94	48 28 01 51 92
55 85 66 96 28	28 30 62 58 83	65 68 62 42 45	13 08 60 46 28	95 68 45 52 43
68 45 19 69 59	35 14 82 56 80	22 06 52 26 39	59 78 98 76 14	36 09 03 01 86
69 31 46 29 85	18 88 26 95 54	01 02 14 03 05	48 00 26 43 85	33 93 81 45 95

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*Rand Corporation. A Million Random Digits. Free Press, Glencoe, Ill. 1955

Note, once a group of 3 is either crossed out or included, go to the entire next group of 3; never use numbers from one group as part of another. Another example is that you need two random numbers between 0 and 9. Since the largest number is a single digit, you will therefore need to pick two single digits. Obviously, the first two numbers on the line you are using will be the picks, unless they are the same. In that case, use the first digit, cross out the next, and proceed until you hit the next different single digit number.

In the random numbers table, the next two single digits after the 251 are 9 and 6. Since they are different, these are the selections. Circle each one.

When using the tables, continue selecting a new random number from the place where you had your last selection. That is, if you see the first line and part of the next for the first selection, continue from that point to select the next one. In this manner, you will not inadvertently cause a pattern or repitition of selections to occur.

7. Sampling a State

The instructions thus far have indicated how to draw a sample of a community or other localized area. Although the instructions are applicable to many communities within a state, they do not provide the necessary information for selecting a sample of the state. Prior to surveying specific communities, the state would have to be sampled.

In the state sample, all communities would have a chance of being selected. Depending upon the current size of each community, places would be selected, with probabilities proportional to size. That means, large communities have a better chance of selection than small ones. Then, once the communities have been selected, the same number of phones (i.e: households) are sampled within each area. Those two stages of sampling - communities within a state and phones within commuities - produce a sample where each phone in the state has an equal chance of being selected. The two stages ultimately equalize the probabilities since phones in large communities have a smaller chance of being selected than those in small communities. To illustrate this, let Mos_{com} = current size of the community, TPS = total population of the state, and K = a constant equal to the number of phones selected in each community. The probability of selecting any one phone in the state (Pr_{Phone}) is thus equal to:

$$Pr_{Phone} = \frac{Mos_{com}}{TPS} \times \frac{K}{Mos_{com}} = \frac{K}{TPS}$$

From the above, it can be seen that the two stages do "equalize" each other, to produce a sample where each phone has the same chance of being selected.

Selecting the state sample of communities (i.e.: the first stage) is a complicated procedure, and should be completed by a sampling statistician. There are many steps, and many decisions which must be made during the sampling process. This procedure is outside the realm of this manual. As such, if a state sample is required, the sample of communities must first be completed, and then, this manual can be used.

8. Conclusions

The prepared manual indicates the decisions and methods involved for selecting a community sample. Although every attempt has been made to cover all situations and define all procedures, there may be some unrealized problems with the manual's application. The possible difficulties might best be illustrated through the use of an analogy.

Essentially, a cookbook recipe has been provided for completing a telephone sample of a community; the ingredients have been specified and the methods for their combination delineated. By following the recipe, the desired end product should be realized. However, as all cooks know, following a recipe does not necessarily insure the desired results. The sources of the difficulties are varied. Sometimes, the ingredients are not correct; either the cook uses the wrong ones, puts in the wrong amount, or, uses a product mislabeled as the correct one. Another problem can be with how the ingredients are combined. The cook may mix everything together rather than adding one at a time, may under/over beat the ingredients, or may misinterpret an instruction and "beat" rather than "fold in". A third problem involves conditions which the cook cannot control, such as the humidity in the air, the quality of the oven, or other people interfering with the product. Lastly, the recipe as given may be wrong; misprints or incorrect proportions can occur.

In our receipe for a telephone sample, every attempt has been made to prevent any of the above from happening. We have attempted to make the instructions clear, and terminology such as "dash" or "pinch" have been avoided.

However, until the recipe is tried under a variety of conditions, its success is undocumented. Until it is tested, our suggestions are simple:

1) Follow the recipe exactly. Make no substitutions or changes
2) Read and follow the worksheet, for it illustrates and describes how the recipe works
3) If there are any questions, consult an "expert" text such as:
    - Babbie, E. R. Survey Research Methods. Wadsworth Publishing Co., Inc. Belmont, CA 1973
    - Dillman D. Mail and Telephone Surveys. John Wiley and Sons, Inc. New York, 1978

    or contact a survey research expert or sampling statistician.

WORKSHEET FOR SAMPLING FROM TELEPHONE DIRECTORY

TEXT REFERENCES
BY SECTION NUMBER

2.3 1) NUMBER OF INTERVIEWS:

TOTAL NUMBER OF COMPLETED INTERVIEWS DESIRED = ____________(n)

2.4.1 2) ESTIMATE RATES:

	LOW	(PROPORTION OF)	HIGH OR ALL SINGLE ESTIMATES
2.4.1.1	(LT)______________	- WORKING HOUSEHOLD TELEPHONES -	______________(HT)
2.4.1.2	(LC)______________	- NUMBERS CONTACTED -	______________(HC)
2.4.1.3	(LE)______________	- ELIGIBLE HOUSEHOLDS -	______________(HE)
2.4.1.4	(LR)______________	- ELIGIBLES WHO RESPOND TO INTERVIEW -	______________(HR)

2.4.1.5 3) CALCULATE PRODUCT OF LOW AND HIGH RATES (ROUND TO 4 DECIMALS):

$$\underset{\text{(LT·LC·LE·LR)}}{\overset{\text{LOW}}{\underline{\hspace{4cm}}}} = \text{PRODUCT} = \underset{\text{(HT·HC·HE·HR)}}{\overset{\text{HIGH}}{\underline{\hspace{4cm}}}}$$

4) CALCULATE NUMBER OF SELECTIONS, INCLUDING RESERVE:

2.4.1.5 $$\frac{\text{\# INTERVIEWS}}{\text{PRODUCT HIGH OR ALL SINGLE}} = \frac{n}{\text{(HT·HC·HE·HR)}} = \underset{\text{(ROUND TO WHOLE NUMBER)}}{\underline{\hspace{5cm}}} = \text{MAIN}$$

2.4.1.5 $$\frac{\text{\# INTERVIEWS}}{\text{PRODUCT LOW}} = \frac{n}{\text{(LT·LC·LE·LR)}} = \underset{\text{(ROUND TO WHOLE NUMBER)}}{\underline{\hspace{5cm}}} = \text{UPPER BOUND}$$

2.4.1.6 RESERVE - CHOOSE ONE

IF SINGLE ESTIMATE:

$$\text{RESERVE} = .25\left[\frac{n}{\text{(HT·HC·HE·HR)}}\right] = \underset{\text{(ROUND TO WHOLE NUMBER)}}{\underline{\hspace{5cm}}}\ \text{(RS)}$$

$$\text{TOTAL} = \underset{\text{(MAIN)}}{\underline{\hspace{3cm}}} + \underset{\text{(RESERVE)}}{\underline{\hspace{3cm}}} = \underset{\text{(TOTAL)}}{\underline{\hspace{3cm}}}\ \text{(SS)}$$

IF RANGE:

$$\text{RESERVE FROM UPPER BOUND} = .10\left[\frac{n}{\text{(LT·LC·LE·LR)}}\right] = \underset{\text{(ROUND TO WHOLE NUMBER)}}{\underline{\hspace{5cm}}}$$

$$\text{TOTAL} = \underset{\text{(UPPER BOUND)}}{\underline{\hspace{3cm}}} + \underset{\text{(RESERVE FROM UPPER BOUND)}}{\underline{\hspace{5cm}}} = \underset{\text{(TOTAL)}}{\underline{\hspace{3cm}}}\text{(SS)}$$

$$\text{RESERVE} = \underset{\text{(TOTAL)}}{\underline{\hspace{3cm}}} - \underset{\text{(MAIN)}}{\underline{\hspace{3cm}}} = \underset{\text{(RESERVE)}}{\underline{\hspace{3cm}}}\ \text{(RS)}$$

TEXT REFERENCES
BY SECTION NUMBER

2.4.2,3.2.1 5) CALCULATE SAMPLING FRACTION:

STUDY POPULATION ESTIMATE = ____________ (PS), or

2.4.2,3.2.1 CALCULATE AS:

________	·	________	·	________	=	________
(# PAGES IN DIRECTORY)		(# COLUMNS ON A PAGE)		(# LINES IN A COLUMN)		(TOTAL LINES IN FRAME)
________	·	________			=	________
(TOTAL LINES IN FRAME)		(PROPORTION OF NONELIGIBLE LINES IN FRAME)				(ESTIMATE OF NON-ELIGIBLE LINES)
________	-	________			=	________ (PS)
(TOTAL LINES IN FRAME)		(ESTIMATE OF NONELIGIBLE LINES)				(ESTIMATE OF STUDY POPULATION)

2.4.3 SAMPLING FRACTION = 1/f = $^1/(^{PS}/_{SS})$ = 1/________ = 1/________ (ROUND TO WHOLE NUMBER)

6) CALCULATE NUMBER OF COLUMNS TO SELECT:

3.2.2 SIZE OF COLUMNS - CHOOSE ONE:

50 LINES OR LESS ________ (SMALL COLUMN)

MORE THAN 50 LINES________ (LARGE COLUMN)

3.2.3 TOTAL # COLUMNS: ________ (# OF PAGES) · ________ (# COLUMNS ON A PAGE) = ________(J)

3.2.3 NUMBER OF COLUMNS TO SELECT - CHOOSE ONE:

IF SMALL COLUMN:

# COLUMNS = $^J/f$ = ________ (ROUND TO 3 DECIMALS)

IF LARGE COLUMN:

# COLUMNS = $^J/f$ · 2 = ________ (J/f) · 2 = ________ (ROUND TO 3 DECIMALS)

TEXT REFERENCES
BY SECTION NUMBER

3.2.3 7) IF NUMBER OF COLUMNS IS FRACTIONAL, USE RANDOM NUMBERS TABLE TO DETERMINE NUMBER OF FINAL COLUMN SELECTIONS:

SELECT 3 DIGIT RANDOM NUMBER (RN) FROM 000 TO 999: __________

DEPENDING UPON SIZE OF RN, DO ONE OF THE FOLLOWING:

IF RN IS LESS THAN DECIMAL NUMBER (# TO RIGHT OF DECIMAL), ROUND UP

IF RN IS EQUAL TO OR GREATER THAN DECIMAL NUMBER, ROUND DOWN

NUMBER OF SELECTIONS, AFTER ROUNDING = ____________________

3.2.4 8) SELECT COLUMNS BY USING RANDOM NUMBERS TABLE:

NUMBER ALL COLUMNS CONSECUTIVELY

SELECT RN'S WITH THE SAME NUMBER OF DIGITS AS LARGEST COLUMN NUMBER

RN'S SELECTED ARE EQUAL TO THE SELECTED COLUMN NUMBER

IF RN IS GREATER THAN TOTAL NUMBER OF COLUMNS, DISCARD

IF DUPLICATE RN IS SELECTED, DISCARD

KEEP SELECTING RN'S UNTIL NEEDED NUMBER OF COLUMNS HAVE BEEN DESIGNATED

WORKSPACE FOR RN/COLUMN SELECTION - WRITE DOWN ALL RN'S - CROSS OUT DUPLICATE OR INELIGIBLE NUMBERS.

CHECK TO ASSURE NEEDED NUMBER OF COLUMNS HAVE BEEN DESIGNATED.

TRANSFER COLUMN NUMBERS SELECTED TO EITHER THE SMALL OR LARGE COLUMN APPLIED WORKSHEET.

TEXT REFERENCES
BY SECTION NUMBER

3.2.4 9) SELECTION OF TELEPHONE NUMBERS:

DEPENDING UPON COLUMN TYPE, CHOOSE ONE:

IF SMALL COLUMN:

TAKE ALL HOUSEHOLD TELEPHONE NUMBERS IN SELECTED COLUMNS--EXCLUDING BUSINESSES, BLANK LINES, SECOND PHONES, OR OTHER NONELIGIBLE PHONES.

IF LARGE COLUMN:

SELECT A SINGLE DIGIT RN FOR EACH COLUMN, AND CHOOSE ONE:

IF RN IS ODD, TAKE LINES 1, 3, 5, ETC.

IF RN IS EVEN, TAKE LINES 2, 4, 6, ETC.

USE ONLY HOUSEHOLD TELEPHONE NUMBERS

WRITE SELECTIONS ON SAMPLE SELECTION SHEET

3.2.5 10) CALCULATE INTERVAL FOR RESERVE SAMPLE:

CONSECUTIVELY NUMBER ALL SELECTIONS IN SAMPLE (SSA)

DEPENDING UPON SIZES OF SS AND SSA, CHOOSE ONE:

IF SS = SSA, THEN INTERVAL IS:

INTERVAL = $^{SS}/_{RS}$ = $\underset{\text{(ROUND TO 2 DECIMALS)}}{\underline{\hspace{6cm}}}$ (y)

IF SS AND SSA ARE DIFFERENT, RECALCULATE RESERVE (RSA)

NEW RESERVE = $\underset{\text{(SSA)}}{\underline{\hspace{2cm}}}$ - $\underset{\text{(MAIN)}}{\underline{\hspace{2cm}}}$ = $\underset{\text{(RESERVE)}}{\underline{\hspace{3cm}}}$ (RSA)

INTERVAL = $^{SSA}/_{RSA}$ = $\underset{\text{(ROUND TO 2 DECIMALS)}}{\underline{\hspace{6cm}}}$ (y)

TEXT REFERENCES
BY SECTION NUMBER

3.2.5 11) DESIGNATE RESERVE SAMPLE:

SELECT RN WITH SAME NUMBER OF DIGITS AS IN y: ____________________

ADD INTERVAL TO RN. CONTINUE ADDING INTERVAL TO RESULTING SUMS UNTIL TOTAL SAMPLE SIZE IS EXCEEDED.

DEPENDING UPON SIZE OF RN, CHOOSE ONE:

IF RN IS LESS THAN ONE, FIRST SELECTION IS (RN + y) _______________

IF RN IS EQUAL TO OR GREATER THAN ONE, FIRST SELECTION IS RN______

RESERVE SELECTIONS ARE EQUAL TO THE NUMBER TO THE LEFT OF THE DECIMAL IN THE RESULT SUMS.

WORK AREA FOR SELECTIONS:

CIRCLE RESERVE SELECTIONS ON SAMPLE SELECTION SHEET.

APPLIED WORKSHEET FOR TELEPHONE BOOK SAMPLE, SMALL COLUMN

COLUMNS TO SELECT: NUMBER CONSECUTIVELY	RN'S FOR COLUMN DESIGNATION	PAGE #	COL. #	TAKE ALL ELIGIBLE HOUSEHOLD LINES	

APPLIED WORKSHEET FOR TELEPHONE BOOK SAMPLE, LARGE COLUMN

COLUMNS TO SELECT NUMBER CONSECUTIVELY	RN'S FOR COLUMN DESIGNATION	PAGE #	COL. #	RN FOR LINE	LINES SELECTED

SAMPLE SELECTIONS

SELECTIONS NUMBERED CONSECUTIVELY (SSA)	PHONE	NAME	ADDRESS	PLACE (IF DESIGNATED)	SELECTION TABLE #

WORKSHEET FOR SAMPLING FROM TELEPHONE DIRECTORY

TEXT REFERENCES
BY SECTION NUMBER

2.3 1) NUMBER OF INTERVIEWS:

TOTAL NUMBER OF COMPLETED INTERVIEWS DESIRED = 400 (n)

2.4.1 2) ESTIMATE RATES:

	LOW	(PROPORTION OF)	HIGH OR ALL SINGLE ESTIMATES
2.4.1.1	(LT) .85	- WORKING HOUSEHOLD TELEPHONES -	.95 (HT)
2.4.1.2	(LC) .90	- NUMBERS CONTACTED -	.95 (HC)
2.4.1.3	(LE) .98	- ELIGIBLE HOUSEHOLDS -	.98 (HE)
2.4.1.4	(LR) .75	- ELIGIBLES WHO RESPOND TO INTERVIEW -	.80 (HR)

2.4.1.5 3) CALCULATE PRODUCT OF LOW AND HIGH RATES (ROUND TO 4 DECIMALS):

LOW: 0.5623 (LT·LC·LE·LR) = PRODUCT = . HIGH: 0.7076 (HT·HC·HE·HR)

4) CALCULATE NUMBER OF SELECTIONS, INCLUDING RESERVE:

2.4.1.5 $$\frac{\text{\# INTERVIEWS}}{\text{PRODUCT HIGH OR ALL SINGLE}} = \frac{n}{(HT \cdot HC \cdot HE \cdot HR)} = \frac{400}{.7076} = \underset{\text{(ROUND TO WHOLE NUMBER)}}{565} = \text{MAIN}$$

2.4.1.5 $$\frac{\text{\# INTERVIEWS}}{\text{PRODUCT LOW}} = \frac{n}{(LT \cdot LC \cdot LE \cdot LR)} = \frac{400}{.5623} = \underset{\text{(ROUND TO WHOLE NUMBER)}}{711} = \text{UPPER BOUND}$$

2.4.1.6 RESERVE - CHOOSE ONE

IF SINGLE ESTIMATE:

$$\text{RESERVE} = .25 \left[\frac{n}{(HT \cdot HC \cdot HE \cdot HR)}\right] = \underset{\text{(ROUND TO WHOLE NUMBER)}}{\_\_\_\_\_\_} \text{ (RS)}$$

$$\text{TOTAL} = \underset{\text{(MAIN)}}{\_\_\_\_\_\_} + \underset{\text{(RESERVE)}}{\_\_\_\_\_\_} = \underset{\text{(TOTAL)}}{\_\_\_\_\_\_} \text{ (SS)}$$

✓ IF RANGE:

$$\text{RESERVE FROM UPPER BOUND} = .10 \left[\frac{n}{(LT \cdot LC \cdot LE \cdot LR)}\right] = \underset{\text{(ROUND TO WHOLE NUMBER)}}{71.1 = 71}$$

$$\text{TOTAL} = \underset{\text{(UPPER BOUND)}}{711} + \underset{\text{(RESERVE FROM UPPER BOUND)}}{71} = \underset{\text{(TOTAL)}}{782} \text{ (SS)}$$

$$\text{RESERVE} = \underset{\text{(TOTAL)}}{782} - \underset{\text{(MAIN)}}{565} = \underset{\text{(RESERVE)}}{217} \text{ (RS)}$$

TEXT REFERENCES
BY SECTION NUMBER

2.4.2,3.2.1 5) CALCULATE SAMPLING FRACTION:

STUDY POPULATION ESTIMATE = ______________ (PS), or

2.4.2,3.2.1 CALCULATE AS:

$\underset{\text{(\# PAGES IN DIRECTORY)}}{91} \cdot \underset{\text{(\# COLUMNS ON A PAGE)}}{4} \cdot \underset{\text{(\# LINES IN A COLUMN)}}{111} = \underset{\text{(TOTAL LINES IN FRAME)}}{40,404}$

$\underset{\text{(TOTAL LINES IN FRAME)}}{40404} \cdot \underset{\text{(PROPORTION OF NONELIGIBLE LINES IN FRAME)}}{.10} = \underset{\text{(ESTIMATE OF NON-ELIGIBLE LINES)}}{4040}$

$\underset{\text{(TOTAL LINES IN FRAME)}}{40,404} - \underset{\text{(ESTIMATE OF NONELIGIBLE LINES)}}{4040} = \underset{\text{(ESTIMATE OF STUDY POPULATION)}}{36,364}$ (PS)

2.4.3 SAMPLING FRACTION $= 1/f = 1/(PS/SS) = 1\Big/\frac{36,364}{782} = 1/46.501 = 1/47$ (ROUND TO WHOLE NUMBER)

6) CALCULATE NUMBER OF COLUMNS TO SELECT:

3.2.2 SIZE OF COLUMNS - CHOOSE ONE:

50 LINES OR LESS ______________ (SMALL COLUMN)

MORE THAN 50 LINES ✓ (LARGE COLUMN)

3.2.3 TOTAL # COLUMNS: $\underset{\text{(\# OF PAGES)}}{91} \cdot \underset{\text{(\# COLUMNS ON A PAGE)}}{4} = 364$ (J)

3.2.3 NUMBER OF COLUMNS TO SELECT - CHOOSE ONE:

IF SMALL COLUMN:

# COLUMNS = J/f = ______________ (ROUND TO 3 DECIMALS)

✓ IF LARGE COLUMN:

# COLUMNS = $J/f \cdot 2 = \underset{(J/f)}{364/47} \cdot 2 = \underset{\text{(ROUND TO 3 DECIMALS)}}{15.490}$

TEXT REFERENCES
BY SECTION NUMBER

3.2.3 7) IF NUMBER OF COLUMNS IS FRACTIONAL, USE RANDOM NUMBERS TABLE TO DETERMINE NUMBER OF FINAL COLUMN SELECTIONS:

SELECT 3 DIGIT RANDOM NUMBER (RN) FROM 000 TO 999: 251

DEPENDING UPON SIZE OF RN, DO ONE OF THE FOLLOWING:

✓ IF RN IS LESS THAN DECIMAL NUMBER (# TO RIGHT OF DECIMAL), ROUND UP

IF RN IS EQUAL TO OR GREATER THAN DECIMAL NUMBER, ROUND DOWN

NUMBER OF SELECTIONS, AFTER ROUNDING = 16

3.2.4 8) SELECT COLUMNS BY USING RANDOM NUMBERS TABLE:

NUMBER ALL COLUMNS CONSECUTIVELY

SELECT RN'S WITH THE SAME NUMBER OF DIGITS AS LARGEST COLUMN NUMBER

RN'S SELECTED ARE EQUAL TO THE SELECTED COLUMN NUMBER

IF RN IS GREATER THAN TOTAL NUMBER OF COLUMNS, DISCARD

IF DUPLICATE RN IS SELECTED, DISCARD

KEEP SELECTING RN'S UNTIL NEEDED NUMBER OF COLUMNS HAVE BEEN DESIGNATED

WORKSPACE FOR RN/COLUMN SELECTION - WRITE DOWN ALL RN'S - CROSS OUT DUPLICATE OR INELIGIBLE NUMBERS.

~~964~~ ~~828~~ ~~462~~ ~~742~~ ~~992~~ (246) (103) ~~912~~ (248)

~~649~~ ~~463~~ (150) ~~766~~ ~~851~~ (200) (272) (302) ~~414~~

~~604~~ ~~445~~ (152) ~~430~~ ~~744~~ (060) (309) (341) ~~985~~

~~946~~ (294) ~~482~~ ~~801~~ ~~519~~ (255) ~~856~~ ~~696~~ (282)

~~830~~ ~~625~~ ~~883~~ ~~686~~ ~~862~~ ~~424~~ ~~513~~ (086) (046)

CHECK TO ASSURE NEEDED NUMBER OF COLUMNS HAVE BEEN DESIGNATED.

TRANSFER COLUMN NUMBERS SELECTED TO EITHER THE SMALL OR LARGE COLUMN APPLIED WORKSHEET.

TEXT REFERENCES
BY SECTION NUMBER

3.2.4 9) SELECTION OF TELEPHONE NUMBERS:

DEPENDING UPON COLUMN TYPE, CHOOSE ONE:

IF SMALL COLUMN:

TAKE ALL HOUSEHOLD TELEPHONE NUMBERS IN SELECTED COLUMNS— EXCLUDING BUSINESSES, BLANK LINES, SECOND PHONES, OR OTHER NONELIGIBLE PHONES.

✓IF LARGE COLUMN:

SELECT A SINGLE DIGIT RN FOR EACH COLUMN, AND CHOOSE ONE:

- IF RN IS ODD, TAKE LINES 1, 3, 5, ETC.
- IF RN IS EVEN, TAKE LINES 2, 4, 6, ETC.

USE ONLY HOUSEHOLD TELEPHONE NUMBERS

WRITE SELECTIONS ON SAMPLE SELECTION SHEET

3.2.5 10) CALCULATE INTERVAL FOR RESERVE SAMPLE:

CONSECUTIVELY NUMBER ALL SELECTIONS IN SAMPLE (SSA)

DEPENDING UPON SIZES OF SS AND SSA, CHOOSE ONE:

✓IF SS = SSA, THEN INTERVAL IS:

INTERVAL = SS/RS = 782/217 = 3.60 (ROUND TO 2 DECIMALS) (Y)

IF SS AND SSA ARE DIFFERENT, RECALCULATE RESERVE (RSA)

NEW RESERVE = ______ (SSA) - ______ (MAIN) = ______ (RESERVE) (RSA)

INTERVAL = SSA/RSA = ______ (ROUND TO 2 DECIMALS) (Y)

TEXT REFERENCES
BY SECTION NUMBER

3.2.5 11) DESIGNATE RESERVE SAMPLE:

SELECT RN WITH SAME NUMBER OF DIGITS AS IN y: 160

ADD INTERVAL TO RN. CONTINUE ADDING INTERVAL TO RESULTING SUMS UNTIL TOTAL SAMPLE SIZE IS EXCEEDED.

DEPENDING UPON SIZE OF RN, CHOOSE ONE:

IF RN IS LESS THAN ONE, FIRST SELECTION IS (RN + y) ______

IF RN IS EQUAL TO OR GREATER THAN ONE, FIRST SELECTION IS RN ✓

RESERVE SELECTIONS ARE EQUAL TO THE NUMBER TO THE LEFT OF THE DECIMAL IN THE RESULT SUMS.

(ONLY RESULTS SHOWN FROM THIS POINT ON)

WORK AREA FOR SELECTIONS:

RN 1.60
y 3.60 y
5.20
3.60
8.80
3.60
12.40
3.60
16.00
3.60
19.60
3.60
23.20
3.60
26.80
3.60
30.40
3.60
34.00
3.60
37.60
3.60
41.20
3.60
44.80

48.40
52.00
55.60
59.20
62.80
66.40
70.00
73.60
77.20
80.80
84.40
88.00
91.60
95.20
98.80
102.40
106.00
109.60
113.20
116.80
120.40
124.00
127.60
131.20

134.80
138.40
142.00
145.60
149.20
152.80
156.40
160.00
163.60
167.20
170.80
174.40
178.00
181.60
185.20
188.80
192.40
196.00
199.60
203.20
206.80
210.40
214.00
217.60

221.20
224.80
228.40
232.00
235.60
239.20
242.80
246.40
250.00
253.60
257.20
260.80
264.40
268.00
271.60
275.20
278.80
282.40
286.00
289.60
293.20
296.80
300.40
304.00
307.60
311.20

314.80
318.40
322.00
325.60
329.20
332.80
336.40
340.00
343.60
347.20
350.80
354.40
358.00
361.60
365.20
368.80
372.40
376.00
379.60
383.20
386.80
390.40
394.00
397.60
401.20
404.80
408.40
412.00
415.60

419.20
422.80
426.40
430.00
433.60
437.20
440.80
444.40
448.00
451.60
455.20
458.80
462.40
466.00
469.60
473.20
476.80
480.40
484.00
487.60
491.20
494.80
498.40
502.00
505.60
509.20
512.80
516.40
520.00

523.60
527.20
530.80
534.40
538.00
541.60
545.20
548.80
552.40
556.00
559.60
563.20
566.80
570.40
574.00
577.60
581.20
584.80
588.40
592.00
595.60
599.20
602.80
606.40
610.00
613.60
617.20
620.80
624.40
628.00

631.60
635.20
638.80
642.40
646.00
649.60
653.20
656.80
660.40
664.00
667.60
671.20
674.80
678.40
682.00
685.60
689.20
692.80
696.40
700.00
703.60
707.20
710.80
714.40
718.00
721.60
725.20
728.80

732.40
736.00
739.60
743.20
746.80
750.40
754.00
757.60
761.20
764.80
768.40
772.00
775.60
779.20
782.80

CIRCLE RESERVE SELECTIONS ON SAMPLE SELECTION SHEET.

25 10 ~~64~~ ~~82~~ ~~84~~	~~61~~ ~~24~~ ~~49~~ ~~91~~ 24	[illegible] 03 ~~91~~ [illegible] 48	~~64~~ ~~91~~ ~~63~~ 15 07	~~66~~ ~~85~~ [illegible] 00 27
38 02 ~~42~~ ~~46~~ ~~06~~	~~44~~ ~~58~~ 52 ~~43~~ ~~07~~	[illegible] 00 08 09 34	~~19~~ ~~85~~ ~~91~~ ~~42~~ 94	~~48~~ ~~68~~ ~~01~~ ~~51~~ ~~42~~
55 ~~85~~ ~~66~~ ~~95~~ 25	~~38~~ ~~30~~ ~~02~~ ~~58~~ ~~83~~	~~65~~ ~~68~~ ~~61~~ ~~42~~ ~~45~~	~~15~~ 08 60 46 35	95 08 25 92 43
98 45 19 69 59	35 14 82 56 80	22 06 52 26 39	59 78 98 76 14	36 09 03 01 86
69 31 46 29 85	18 88 26 95 54	01 02 14 03 05	48 00 26 43 85	33 93 81 45 95
37 31 61 28 98	94 61 47 03 10	67 80 84 41 26	88 84 59 69 14	77 32 82 81 89
66 42 19 24 94	13 13 38 69 96	76 69 76 24 13	43 83 10 13 24	18 32 84 85 04
33 65 78 12 35	91 59 11 38 44	23 31 48 75 74	05 30 08 46 32	90 04 93 56 16
76 32 06 19 35	22 95 30 19 29	57 74 43 20 90	20 25 36 70 69	38 32 11 01 01
43 33 42 02 59	20 39 84 95 61	58 22 04 02 99	99 78 78 33 82	43 67 16 38 95
28 31 93 43 94	87 73 19 38 47	54 36 90 98 10	83 43 32 26 26	22 00 90 59 22
97 19 21 63 34	69 33 17 03 02	11 15 50 46 08	42 69 60 17 42	14 68 61 14 48
82 80 37 14 20	56 39 59 89 63	33 90 38 44 50	78 22 87 10 88	06 58 87 39 67
03 68 03 13 60	64 13 09 37 11	86 02 57 41 99	31 66 60 65 64	03 03 02 58 97
65 16 58 11 01	98 78 80 63 23	07 37 66 20 56	20 96 06 79 80	33 39 40 49 42
24 65 58 57 04	18 62 85 28 24	26 45 17 82 76	39 65 01 73 91	50 37 49 38 73
02 72 64 07 75	85 66 48 38 73	75 10 96 59 31	48 78 58 08 88	72 08 54 57 17
79 16 78 63 99	43 61 00 66 42	76 26 71 14 33	33 86 76 71 66	37 85 05 56 07
04 75 14 93 39	68 52 16 83 34	64 09 44 62 58	48 32 72 26 95	32 67 35 49 71
40 64 64 57 60	97 00 12 91 33	22 24 73 01 11	83 97 68 95 65	67 77 80 98 37
06 27 07 34 26	01 52 48 69 57	19 17 53 55 96	02 41 03 89 33	86 85 73 02 32
62 40 03 87 10	96 88 22 46 94	35 56 60 94 20	60 73 04 84 98	96 45 18 47 07
00 98 48 18 97	91 51 63 27 95	74 25 84 03 07	88 29 04 79 84	03 71 13 78 26
50 64 19 18 91	98 55 83 46 09	49 66 41 12 45	41 49 36 83 43	53 75 35 13 39
38 54 52 25 78	01 98 00 89 85	86 12 22 89 25	10 10 71 19 45	88 84 77 00 07
46 86 80 97 78	65 12 64 64 70	58 41 05 49 08	68 68 88 54 00	81 61 61 80 41
90 72 92 93 10	09 12 81 93 63	69 30 02 04 26	92 36 48 69 45	91 99 08 07 65
66 21 41 77 60	99 35 72 61 22	52 40 74 67 29	97 50 71 39 79	57 82 14 88 06
87 05 46 52 76	89 96 34 22 37	27 11 57 04 19	57 93 08 35 69	07 51 19 92 66
46 90 61 03 06	89 85 33 22 80	34 89 12 29 37	44 71 38 40 37	15 49 55 51 08
11 88 53 06 09	81 83 33 98 29	91 27 59 43 09	70 72 51 49 73	35 97 25 83 41
11 05 92 06 97	68 82 34 08 83	25 40 58 40 64	56 42 78 54 06	60 96 96 12 82
33 94 24 20 28	62 42 07 12 63	34 39 02 92 31	80 61 68 44 19	09 92 14 73 49
24 89 74 75 61	61 02 73 36 85	67 28 50 49 85	37 79 95 02 66	73 19 76 28 13
15 19 74 67 23	61 38 93 73 68	76 23 15 58 20	35 36 82 82 59	01 33 48 17 66
05 64 12 70 88	80 58 35 06 88	73 48 27 39 43	43 40 13 35 45	55 10 54 38 50
57 49 36 44 06	74 93 55 39 26	27 70 98 76 68	78 36 26 24 06	43 24 56 40 80
77 82 96 96 97	60 42 17 18 48	16 34 92 19 52	98 84 48 42 92	83 19 06 77 78
24 10 70 06 51	59 62 37 95 42	53 67 14 95 29	84 65 43 07 30	77 54 00 15 42
50 00 07 78 23	49 54 36 85 14	18 50 54 18 82	23 79 80 71 37	60 62 95 40 30
44 37 76 21 96	37 03 08 98 64	90 85 59 43 64	17 79 96 52 35	21 05 22 59 30
90 57 55 17 47	53 26 79 20 38	69 90 58 64 03	33 48 32 91 54	68 44 90 24 25
50 74 64 67 42	95 28 12 73 23	32 54 98 64 94	82 17 18 17 14	55 10 61 64 29
44 04 70 22 02	84 31 64 64 08	52 55 04 24 29	91 95 43 81 14	66 13 18 47 44
32 74 61 64 73	21 46 51 44 77	72 48 92 00 05	83 59 89 65 06	53 76 70 58 78
75 73 51 70 49	12 53 67 51 54	38 10 11 67 73	22 32 61 43 75	31 61 22 21 11
76 18 36 16 34	16 28 25 82 98	64 26 70 54 87	49 48 55 11 39	94 25 20 80 85
00 17 37 71 81	64 21 91 15 82	81 04 14 52 11	39 07 30 60 77	39 18 27 85 68
54 95 57 55 04	12 77 40 70 14	79 86 61 57 50	52 49 41 73 46	05 63 34 92 33
69 99 95 54 63	44 37 33 53 17	38 06 28 37 93	47 10 62 31 28	63 59 40 40 32

APPLIED WORKSHEET FOR TELEPHONE BOOK SAMPLE, LARGE COLUMN

COLUMNS TO SELECT NUMBER CONSECUTIVELY	RN'S FOR COLUMN DESIGNATION	PAGE #	COL. #	RN FOR LINE	LINES SELECTED
1	246	77	2	2	2,4,6,8....110
2	103	41	3	8	2,4,6,8 ... 110
3	248	77	4	9	1,3,5,7 ... 111
4	150	53	2	5	1,3,5,7 ... 111
5	200	65	4	6	2,4,6,8 ... 110
6	272	83	4	8	2,4,6,8 ... 110
7	302	91	2	4	2,4,6,8 ... 110
8	152	53	4	5	1,3,5,7 ... 111
9	060	30	4	5	1,3,5,7 ... 111
10	309	93	1	2	2,4,6,8 ... 110
11	341	101	1	4	2,4,6,8 ... 110
12	294	89	2	3	1,3,5,7 ... 111
13	255	79	3	6	2,4,6,8 ... 110
14.	282	86	2	8	2,4,6,8 ... 110
15	086	37	2	4	2,4,6,8 ... 110
16	046	27	2	5	1,3,5,7 ... 111

nie A 23 Kear Rd Pttg	435-8189
rand Drolet Rd Epsom	736-9379
e 26 Concord Hi Pttg	435-8195
S P N Sutton Rd	927-4505
ard Jr Epsom	736-9064
ral D Rt 28 Pttg	435-6566
ane C Black Hi Rd Conc	225-3218
rt R	
rt Hill Rd Pttg	435-6930
nald 4 Brook Sunc	485-4013
nald A 3 Brook Pttg	435-6326
nald Fowler Rd Eps	736-9737
sano Concord Rd Pttg	435-8426
es J 24 Ramo Pena	753-9082
tchell Old Concord Rd Henn	428-7665
ey W Downing N H	464-5524
L Thompson Conc	225-6237
las J 153 S Main Pena	753-4023
nald E Maj Buck Sunc	485-3736
nald R 67 Pleasant Conc	224-1066
ul A 49 Knox Rd Conc	225-6113
ul A Pembroke Hi Rd Conc	485-7156
rl L 289 Pembroke Conc	224-0275
ne A 10 Reserve Sunc	485-5369
tt F Bow Ctr Rd Bow	224-0878
tt L 17 Akers Conc	225-5028
omas J Cross Country Rd Pemb	224-4258
omas J 248 N Main Conc	229-8192
yming B 43 Main Pttg	435-5619
ank A Jr Shaker Rd E Conc	224-7598
A 25 Crestwood Dr Conc	225-2575
ayton & Freda	
Fate Trl Conc	224-6071
san A 1 Pinewood Trl Conc	225-6586
rt A Jr N River Ln E Barr	942-5411
George Common Terrace Bosc	796-2275
azel G Fan Rd Conc	224-4137
erie 250 N Main Conc	225-9327
erle Jr & Patricia	
r Rd Conc	224-7985
ward E & Robin L Green Hooks	942-6821
hard W Putney Hi Dist Webster	746-3249
Carin Amesbury Rd Cont	746-5225
Charles H Amesbury Rd Cont	746-4986
er Thos P & Nancy	
ng Conc	224-6997
rcement Administration	
rt Conc	225-2920
arles Wood Hi Rd Bow	774-7341
a Albert M MD	
r Manchester	668-6436
er David & Susan	
on Dr Wash	495-3486
and Josiah H Jr	
School Conc	225-9711
orm 1 Osgood Conc	224-8986
Cont John Foot Hills Rd Brad	938-2566
er Gerard L & Pamela	
artam Rd Conc	224-2040
Verne W Church Hills	464-5517
on E Barton Hill Rd Hillsboro	478-3200
rene J 15 Fellows Conc	224-4443
N State Conc	228-1040
ne C Dominic Rd Cont	746-4224
6 Elm Conc	224-3974
a 82 Center Pena	753-4950
e Bostell La Brad	938-2327
nald Valley Rd Stoddard	495-3518
d Jr Sunnyside Sunc	485-9031
red A 32 Glass Sunc	485-7526
red H Loudon N H	783-4522
Rudolph I Jones Pond Rd Pttg	435-6777
Anne L Putney Hi Dist Web	746-5106
C Chilton & Jane	
ount Conc	225-3616
Chas 88 Bassett Hi Rd Cont	267-6055
ohn A 9314 Manchester Conc	724-3402
& King Inc 155 Manchester Conc	228-0574
L M 125 N State Conc	224-6374
Paul L Mrs 10 Court Conc	224-0986
Rene G 11 Pine Hook	485-5818
C 15 Pitman Conc	224-6617
Olive L 16 Chandler Pena	753-4312
Patk A Al's Av Sunc	485-3098
Thos 16 Cross Pena	753-4038
B A Acorn Rd Antr	588-2737
Auth N Chestnut Pttg	435-6609
Augustin J & Janet L	
ch Conc	228-8603
D L 62 S Main Pena	753-6720
Ronald H Sr	
Hill Rd Loudon	435-8835
et Group P St Paul's Schl Conc	224-8996
ue Kath 177 E Loudon Rd Conc	224-8179
ue T 126 Warren Conc	228-1936
ue William Stowe Mt Rd Hills	478-3127
er Wm D 88 Bog Rd Hils	464-3418
Irm & Suzanne Goshen Dr Loudon	783-4005
John J 66 S Fruit Conc	225-5623
Richard J Rowe Mt Rd Brad	938-2361
Arthur G Downing Ln Downing	464-5611
Basil A 19 Roland Dr Allenstown	485-5466
Georgette Allen Acres	485-9720
L 13-½ Broadway Sunc	485-9747
Roger 42 Roland Dr Allenstn	485-7414
Yves J Mohan Mills Brad	938-2123
Edmond & Claire	
Acres	485-9489
Raymond Lessard Pl Ln Wash	495-3169
Richard D 16 Dunn Conc	221-4325
Douglas 701 Loudon Rd Conc	224-8439
John E & Susan D Bow N H	225-9553
Duclos Bernard R 23 Carter Conc	224-2789
Duclos Chas A 40 Franklin Conc	224-5537
Duclos Edw 17 Hazel Dr Conc	225-2950
Duclos Floyd E 3 Jackson Conc	228-8674
Duclos Geo 62 Merrimack Pena	753-9036
Duclos Kevin 37 Sonne Conc	225-6053
Duclos Larry M 128 N State Conc	225-3107
Duclos Lionel Cross Rd Epsom	736-9613
Duclos Marcel A & Elaine M	
3 Broken Ground Dr Conc	224-2136
Duclos Marion M Burnham Intervale Conc	746-3648
Duclos Michael & Annetta	
116 Monroe Av Allenstown	485-7694
Duclos Nancy F Royal Garden Apts Conc	224-4625
Duclos Robert J Jr Spring St Ext Cont	746-4485
Duclos Wilfred J Jr 42 Broad Conc	224-6492
Dudley Ron & Susan 17 Princeton Conc	224-6429
Dudley Duane A 10 Foster Conc	224-4852
Dudley Florence (Betty)	
White Rock Hill Rd Bow	225-5394
Dudley Jack A Harvey La Newb	942-7606
Dudley Melissa A West Rd Cant	783-4523
Dudley Mildred H Clinton Rd Antr	588-2297
Dudley Reginald E 41 Hemlock Rd Conc	224-5234
Dudley Richard H & Susan G	
99 N State Conc	228-8134
Dudley Robt E 120 West Rd Cant	783-4368
Dudley Thos M 176 School Conc	225-2053
Dudley Walsh & Moyer archts	
194 N Main Conc	224-9121
Dudley William G Walnut Hills	464-3371
Dudfield Anna Black Pd Rd Windsor	478-3976
Dudfield Robt Preston Hills	464-3472
Dudfield William W Hammer Hills	464-3628
Duerr Caroline K pediatrician	
279 Pleasant Conc	228-0862
Duerr Walter C Jr atty 107 N State Conc	224-4003
Res Dr 161 School Conc	224-2618
Duesnoyer Sally J Gulf Rd Henn	428-3513
Dufault A D Stoneybrook Ln Cont	746-4322
DuFault John A Knollwood Circle Conc	746-4717
Duff Donald E & Donna 7 Hampton Conc	224-9564
Duff Peter J Breezy Hi Rd Brad	938-2402
Duff Vance O 14 Glen Conc	224-2705
Duffett Herbert E 134a Loudon Rd Conc	225-9626
Duffin Glenn R & Patricia A	
Royal Gardens Apts Conc	224-8911
Duffus Helen 177 W Loudon Rd Conc	224-0423
Duffus John Peter High Bosc	796-2307
Duffy Brian C Hartwood N H	942-8186
Duffy C K Pine Glenn Rd Hills	464-5745
Duffy Dorothy C 54 Heather Ln Conc	225-2992
Duffy Fred L Tanglewood Dr Henn	428-7979
Duffy Fred L & Ricarda L	
Tanglewood Dr Henn	428-7979
Duffy Jas F Briar Hi Rd Hopkinton	746-3352
Duffy Jas P 11 Jackson Conc	225-5435
Duffy John Paul 109a S State Conc	224-1423
Duffy M 250 N Main Conc	224-4377
Duffy M Harrison 57 Parker Conc	225-6689
Duffy Michael 32 Logging Hi Rd Bow	224-5358
Duffy Thos J 90 Abbott Rd Conc	753-4761
Duffy's 58 N Main Conc	228-8401
Dufield Jas & Dot Myrtle Hills	464-3312
Dufield Lucille Queen Bosc	796-2221
Dufield Marnie Mrs	
Sugar Hi Rd Hopkinton	746-3045
Dufield W G Downing N H	464-5814
Duford David & Kathleen 111a Main Pena	753-4983
Duford Geo 48 Turnpike Sunc	485-7419
Duford Diane E 34 River Rd Sunc	485-5761
Duford Henry J 24 Merrimack Hook	485-3013
Duford Jos A 12 Valley Sunc	485-3586
Duford Paul G 31 Turnpike Sunc	485-5250
Duford Richard G Blackwater Dist Cont	746-4277
Duford Robt H Bow Bog Rd Bow	224-7582
Duford Rolande M 34 Turnpike Sunc	485-3229
Duford Ronald R Hilliard Rd Chi	798-5247
Dufour Francis & Mary	
50 Adams Av Allenstn	485-5967
Dufour Geo & Judy Pierce La Hills	478-5785
Dufour Jas & Beverly	
1 Providence Dr Allenstn	485-5725
Dufresne Donald A Clearview Dr Bow	225-3555
DuFresne Gerald K 65 N State Conc	224-0410
Dufresne John F 400 N State Conc	228-8040
Dufresne Paul 15 Pitman Conc	224-2283
Dufresne Pauline 1 New Yorker Dr Allenstn	485-5033
Dufresne Rosario J Pine Acres Rd Allenstn	485-4471
Dugal D Lee 8 Old Suncook Rd Conc	225-5861
Dugal Rose Marie 25 Grappone Dr Conc	224-9727
Dugan Geo A Lacasse Rd Barn	435-6625
Dugan John H	
25 Sherwood Meadows Pemb	485-5628
Dugan Laurence J 144 Washington Pena	753-4695
Dugas Thos A 16 Hampshire Dr Conc	228-8538
Dugas Thos A & Sharon C	
91 Franklin Conc	228-8533
Dugay Jos 10 Laurel Conc	224-4236
Duggan Mary Lou	
Aroostook Valley Rd N Sutt	927-4910
Duggan R 27 Westcrest Hts Rd Conc	224-9416
Duggan Wm 193 Manchester Conc	228-0619
Duggan William Jr	
Aroostook Valley Rd Sutt	927-4625
DUGGAN'S REALTY INC	
W Main Hills	464-5597
Concord Antr	588-2904
Res Duggan Laurence	
Forest Jones Rd Hills	464-3809
Duggan Richard 20 Pierce Conc	224-2184
Dugrenier David Pages Cor N Dunb	774-3454
Dugrenier Diane M Gulf Rd Henn	428-7963
Dugrenier Ernest E Dunbarton N H	774-3896
Duguay Douglas E & Cynthia L	
58 Front Sunc	485-5008
Duguay Edw R River Rd Allenstn	485-3720
Duguay Eugene J 23 Fayette Conc	224-8742
Duguay Geo O Pembroke St Pembroke	224-4749
Duguay Jas P River Rd Sunc	485-3017
Duguay Pauline L 104 Elm Sunc	485-9846
Duguay Richard J 15 Granite Sunc	485-4066
Duhaime Bernard E 13 Ridge Rd Conc	225-2823
Duhaime Guy H 137 Pleasant Hook	485-9001
Duhaime Jacqueline J 50 Granite Allenstn	485-9073
Duhaime Laura 39 Front Sunc	485-3220
Duhaime Lionel P 7 Orchard Dr Hook	485-7570
Res 7 Orchard Dr Hook	485-7070
Duhaime Mary L 34 Church Pembroke	485-5462
Duhaime Robt G 7 Sunnyside Av Sunc	485-9626
Duhaime S E 55 Washington Pena	753-4296
Duhnacker Jas & Diane	
41 Bourne Dr Conc	225-8730
Duke Robt St Paul's School Conc	224-3625
Dukette Clifford L Queen Pena	753-4129
Dukette Gertrude 43 Washington Pena	753-4[illegible]
Dukette Harley L Queen Pena	753-6[illegible]
Dukette Mary 36 Jackson Pena	753-4527
Dukette Raymond H 12 Tremont Conc	225-3406
Dulac Jas Mrs Main Ant	588-2291
Duley Geo E 73 Bow Conc	225-6969
Duley J E 74 School Conc	224-5171
Dulong Lawrence P Lake View Rd Eps	435-6352
Dulude Jas Mrs Dunb Cen N H	774-3337
Dulude Octave contr Pages Cor N Dunb	774-3682
Dulude Roderick Pages Cor Dunb	774-4485
Dumais Donald Hill Hills	464-3213
Dumais Edward L Loudon N H	798-5551
Dumais Jas Hill Hills	464-3298
Dumais John & Mary 5 Merrill Dr Hook	485-5953
Dumais M M 100 South St Conc	225-0082
DUMAIS WM J [illegible] Hills	**464-3377**
Dumas Louis 12 Pinewood Pena	753-9524
Dumas Richard R 106 Grandview Rd Pemb	485-5682
Dumensil Nancy V 11 Front Sunc	485-3993
Dumm Andrea Rush Rd Henn	428-3439
Dumm Richard Hall Av Henn	428-7523
Dumont Carroll B Loudon Ctr N H	435-8785
Dumont Donna Harvey Way Hills	464-3649
Dunagan Arnold 9 Bay View Rd Hook	485-8092
Dunbar Bernard L 2 Wood Av Conc	224-7338
Dunbar Chas E 29 Lyndon Conc	224-5506
Sum Res Jameson Pd Newb	942-5954
Dunbar Interiors Inc 4 N Main Conc	225-2571
Dunbar John E N Water Bosc	796-2260
Dunbar Maurice W West Antr	588-2276
Dunbar Robt N Water Bosc	796-2203
Dunbar Roscoe Main Rd Dun	774-3391
Dunbar Wm P 105 Carter Rd Cant	783-9886
DUNBARTON FUEL SERVICE	
Main Rd Dunb	774-3451
DUNBARTON TELEPHONE COMPANY	
For Repair Service	774-3121
For Local Information	22-411
For Long Distance Information & Calls see introductory pages of this Directory	
Fire Phone	225-3355
Forest Fire Warden	774-3710
Police Phone	224-1232
Calls to Concord	22 plus 5 figures
For assistance in calling dial	"Operator"

To call another party on your own line
If a telephone number is the same as your number except for the last digit that telephone is on your line. Listen for the dial tone and dial the five figures of the listed number. When you hear the busy signal replace your receiver and wait until you think the party you are calling has had time to answer, then pick up your receiver. If your party has answered and is waiting you will then be able to talk. If you hear no answer you will have to repeat the process. If the called party answers and hears a busy signal that means someone is trying to reach them and they should hold until you pick up to talk.
FOR ADDITIONAL INFORMATION SEE FRONT PAGES OF DIRECTORY

DUNBARTON TOWN OF	
Fire Dept	
To Report A Fire	225-3355
Fire Sta Dunbarton	774-3542
Library Dunbarton	774-3546
Police Dept	224-1232
School Dept	
Center School Dunbarton	774-3181
Selectmen Dunbarton	774-3541
Town Clerk Dunbarton	774-3547
Town Hall	
Dunbarton Ctr Dunbarton	774-6488
Duncan Clarence E 504 Hall Conc	228-8143
Duncan David J 14 Grandview Conc	225-9837
Duncan Dayton R 24 Franklin Conc	224-9399
Duncan Geo V 24 Bourne Dr Conc	225-3142
Duncan J Richard 16 Fowler Pena	753-4295
Duncan Lawrence I 103 Centre Conc	225-9581
Duncan Richard 14 Eastman Conc	224-8314
Dunckley W A Contoocook Pond Hillsboro	478-3206
Duncraft 33 Fisherville Rd Conc	224-0288
Duncraft 99 Fisherville Rd Conc	225-2761
Dunham Dolores 3 McKee Dr Conc	224-0626
Dunham Jas F & Louise	
10 Windham Cir Conc	228-1409
Dunham Raymond K	
316 Pembroke St Pemb	224-4834
Dunham S L 316 Pembroke St Pemb	224-4819
Dunkin' Donuts	
121 S Main Conc	224-2420
101 Loudon Rd Conc	225-9552
Dunklee A 90 N State Conc	228-8138
Dunklee Dani F 23 Walker Conc	224-2923
Dunklee Donald A Jr Black Hall Rd Eps	736-9498
Dunklee Harold F 3 Tremont Ct Conc	224-0324
Dunklee Silas Mann Henn	428-7625
Dunlap Agency Inc 82 High Somersworth	
Toll Free-Dial "1" & Then	800 582-7222
Dunlap C L 59 N Spring Conc	224-1331
Dunlap C S Mrs 33 Christian Av Conc	224-6260
Dunlap Carl F Prospect Ant	588-6305
Dunlap Donald Goodell Rd Ant	588-6721
Dunlap Donald W Robinson Rd Chi	798-5984
Dunlap Irene School Hills	464-5056
Dunlap Michael Smith Sanborn Rd Chi	798-5857
Dunlap Nina Bridge Hills	464-3611
Dunlap Paul Clinton Rd Ant	588-6807
Dunlap Philip S r est 77 N Main Conc	224-9551
Res Putney Hi Hopkinton	746-3561
Sum Res La Massasecum Brad	938-5361
DUNLAP PHOTO SERV INC	
7 S Main Conc	224-0261
Dunlap Richard G 1 Humphrey Conc	225-6958
Dunlap Robt Goodell Rd Ant	588-6724
Dunlap Ronald R 9 Elliott Pena	753-4460
Dunlap Shirley Gulf Rd Henn	428-7234
Dunlap Terry J & Kathryn J	
43½ South St Conc	224-4758
Dunlap Wilfred Henn Rd Hills	464-3053
Dunleavy Dennis E 48 Old Loudon Rd Conc	224-6575
Dunlop Geo E 88 Broadway Sunc	485-7051
Dunlop Jas S 6 Jackson Bosc	753-9295
Dunlop Sanders High Brad	938-2395
Dunmore C H 41 Summer Pena	753-6700
Dunn Alan C 51 Ridge Rd Allenstn	485-4260
Dunn Audrey 133 Fisherville Rd Conc	224-1294
Dunn Chet & Hope Penacook Rd Cont	746-4406
Dunn Gladys W 9 Pinewood Pena	753-9821
Dunn & Hilliard attys 88 N Main Conc	224-3322
Dunn James Main Rd Dun	774-3316
Dunn John E Bow N H	224-3479
Dunn John W 37 Beacon Conc	225-5686
Dunn Jos S Corn Hill Rd Bosc	796-2446
Dunn Kathleen Main Brad	938-2783
Dunn M 60 High Pena	753-9749
Dunn M D 21 Fayette Conc	224-1587
Dunn M D 77 Pleasant Conc	224-7824
Dunn Margaret (Chas Mrs)	
33 Christian Av Conc	224-5139
Dunn Michael atty 1000 Elm Manchester	668-0300
Res 4 Putney Av E Conc	228-8075
Dunn Michael M 8 Tremont Pena	753-4463
Dunn Pamela J Mrs 8 Tremont Pena	753-4463
Dunn Pearl C Mrs	
24 Longmeadow Dr Conc	224-9397
Dunn Robert W Morse Hi Rd Brad	938-5382
Dunn Rose Mrs Library Sunc	485-5833
Dunn Sharon 9 Pinewood Pena	753-9821
Dunn Vincent P lwyr 88 N Main Conc	224-3322
Dunne John J 77 S Main Pttg	435-8536
Dunnell Richard L Jr 16 Fairview Rd Conc	224-5034
Dunnigan M E 28b Merrimack Conc	224-3691
Dunnigan Maureen E 528 N State Conc	224-8518
Dunning Carol & Robert Gage Hi Rd Hopk	746-5148
Dunning Craig & Linda	
High Pond Rd Hopk	746-5119
Dunning Home Group The Gage Hi Hopk	746-3030
Henniker N H	428-7090
Dunning Robt F Jr 111 S State Conc	224-9335
Dunns C Long Woods Rd Hills	464-5229
Dunsmore Jas A 112 Washington Pena	753-4305
Dunsmore Laura S Mrs	
33 Christian Av Conc	225-5816
Dunton D 54-½ Thorndike Conc	224-0719
Dunton Robt Jr E Washington	495-3482
Dupay Mahlon L 85 Centre Conc	224-1259
Dupell David H 35 Carter Conc	228-1650
Dupineau Thomas F Pierce La Rd Ant	588-2768
Dupont Alfred & Ora 83 Washington Pena	753-4709
Dupont Armand R & Germaine C	
17 Cross Sunc	485-3457
Dupont Donna Forest Ln Dr Hills	464-3718
Dupont John A 38 Granite Sunc	485-4752
Dupont L J & R E 115 Warren Conc	228-8367
Dupont Michael & Karen 31 School Sunc	485-7127
Dupont Paul A 61 Centre Conc	225-3942
Dupont R 34 Pleasant Sunc	485-3088
Dupont Real P & Pauline 225 Main Pemb	485-9044
Duprey Michael M & Gisele	
86-½ School Conc	224-6990
Duprey Milton W 37 Concord Dr Conc	225-6376
Duprey R 25 Dunbarton Av Hills	485-7886
Duprey Robt R & Christine P	
12 Chenamont Dr Conc	225-2411

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SAMPLE SELECTIONS

(PARTIAL LISTING - FOR EXAMPLE ONLY)

SELECTIONS NUMBERED CONSECUTIVELY (SSA)	PHONE	NAME	ADDRESS	PLACE (IF DESIGNATED)	SELECTION TABLE #
①	774-3896	ERNEST DUBRENIER		2 DUNBARTON	9 = D
2	224-8742	EUGENE DUGUAY	23 FAYETTE	CONC	10 = E
3	485-3017	JOS P DUGUAY	RIVER RD	SUNC	11 = G
4	485-4068	RICHARD DUGUAY	15 GRANITE	SUNC	12 = H
⑤	485-9001	GUY H. DUHAIME	137 PLEASANT	HOOK	1 = A
6	485-3720	LAURA DUHAIME	39 FRONT	SUNC	2 = B
7	485-7070	LIONEL DUHAIME	7 ORCHARD DR	HOOK	3 = D
⑧	485-9626	ROBT DUHAIME	7 SUNNYSIDE AV	SUNC	4 = E
9	753-4594	GERTRUDE DUKETTE	83 WASHINGTON	PENA	5 = F
10	753-4529	MARY DUKETTE	36 JACKSON	PENA	6 = H
11	588-2291	MRS JOS DULAC	MAIN	ANT	7 = A
⑫	224-5171	J E DULEY	E 74 SCHOOL	CONC	8 = C
13	774-3557	MRS JOS DULUDE	POND	CEN N.H.	9 = D
14	774-4485	RODRICK DULUDE	PAGES COR	DUNB	10 = E
15	798-5551	EDWARD L. DUMAIS		LONDON N.H.	11 = G
⑯	485-5983	JOHN & MARY DUMAIS	5 MERRILL DR	HOOK	12 = H
17	485-5682	RICHARD DUMAS	106 GRANDVIEW	PEMB	1 = A
18	428-3439	ANDREA DUMM	RUSH RD	HENN	2 = B
⑲	435-8755	CARROLL DUMONT	9	LONDON CT. N.H.	3 = D
20	485-8092	ARNOLD DUNAGAN	9 BAY VIEW RD.	HOOK	4 = E
21	224-5506	CHAS DUNBAR	29 LYNDON	CONC	5 = F
22	588-2276	MAURICE DUNBAR	WEST	ANTR.	6 = H
㉓	774-3391	ROSCOE DUNBAR	MAIN RD	DUN	7 = A
24	228-8143	CLARENCE DUNCAN	504 HALL	CONC	8 = C
25	224-4399	DAYTON DUNCAN	24 FRANKLIN	CONC.	9 = D

COMMUNITY ENVIRONMENT STUDY

ANALYSIS PLAN

Prepared by

Institute for Survey Research
Temple University
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Philadelphia, Pennsylvania 19122
(215) 787-8355

June 1981

1. Introduction: Analysis Plan and Guide

The Community Environment Study Survey is designed to capture a sufficient amount of attitudinal information to provide an understanding of community feeling about noise in local areas. Certainly there are a great many questions, measures, and types of information which could be included under this topic. If we were to ask every possible question, the survey might never end. Our goal was to provide the means for quick, directed, and efficient assessment. We have had to balance our objectives (the uses to which the survey information will be used) against the costs. Those costs consist of the burden placed on survey respondents, who are afterall volunteers trying to help the community, and the costs in terms of person-time associated with telephone interviewing, processing, analyzing, and interpreting the survey results.

The survey questionnaire consists of 22 questions, some of which have several subsections. When all the information on a completed questionnaire is put on a computer, it requires the equivalent of two computer cards or 106 columns of computer card space. The Call Report and Screening Form may also be put on a computer file and when complete will require one computer card or 44 columns of computer card space. Three computer cards of information can tell you a great deal.

1.1. Analysis Purpose and Format

The purpose of this analysis plan is to provide you with a basic overview of the information you will have collected in the community survey. This plan is really a guide to data analysis rather than a plan of all possible routes through the data. The overview will include some questions which most communities find important in their assessments of local noise. We have not attempted to provide an answer to every question nor a presentation of every combination of data elements (variables) nor every, or even very many, different statistical analyses. We are providing you with the basics, a guideline. If we attempted to anticipate local curiosity we would undoubtedly provide a lot of unwanted and expensive computer output that probably wouldn't answer all your questions. Responding to your unique questions about the data would then require costly reprogramming. Because we want to accommodate your needs, we are attempting to give you the basics and suggest directions to take with further inquiries.

The Analysis Plan consists of two sections. First, we discuss the key elements of data processing including editing and coding and the content of the computer file. Next, we move on to the heart of the matter, the survey results. We provide you with the basic overview and discuss how statistics may be interpreted.

2. Data Processing

Data processing consists of the series of operations which are required in the transformation of information on individual questionnaires into aggregate compilations. This processing of transforming people's responses into numerical codes for computer processing is also called data reduction. Individual data items are reduced to their most useful form in the context of group summarization and analysis. A trade-off between the potential value of unique individual responses and the necessity for comparability of information in group analysis is implied. In order to compare responses from more than one individual a standard language, or coding scheme is required. We have provided a coding scheme which should meet your needs. However, the use of coding schemes must have enough flexibility to incorporate changes if they are sufficiently important. By "important" we mean that new responses occur frequently enough to justify adding a new code or modifying an old code category. This might happen because popular issues change over time or because a community might have a very specific noise issue, e.g., the operation of a new industry or airfield, or a dramatic shift in population due to a housing development. In instances where a given coding scheme does not appear to be working it will have to be modified to represent group responses. Better individual responses will have to be examined and new codes developed. Thus, our approach to data processing is like that for analysis; namely, we are offering acceptable guideline which may have to be adapted to accommodate local conditions as reflected in local community surveys.

Data processing can be broken into four main operations. The first operation is data collection. The conduct of all survey operations leading to completed questionnaires is covered in the manual of field operations. The second through fourth operations are described in turn.

2.1 Editing

Editing consists of reviewing the responses recorded on each individual questionnaire following the requirements of the Coding Manual. The purpose of editing is to catch interviewer errors in recording responses so that those errors will not pass through computer processing and become part of the data set. Editing is the first line of defense after the interviewing. In some cases, responses will be missing and a decision about whether or not efforts should be made to recontact respondents to obtain the information in question will have to be made. The procedures for dealing with missing information are predicated on understanding two dimensions, (1) the importance of the specific data element, and (2) the potential monetary cost of obtaining that information through recontact procedures. It is not cost efficient to recontact respondents if the information desired is either a small or trivial part of the data set. In editing, the determination will be made about the reason behind the absence of information. Did the respondent refuse, or did the interviewer forget or otherwise accidentally skip the question? Generally, one does not recontact respondents for item refusals. Editing is the preliminary check which prepares the questionnaires for the third step.

2.2. Data Entry

Data entry consist of keypunching to data. This may be done directly from edited questionnaires, or in two steps. In the two-step process, the questionnaires are coded onto computer sheets which present the column structure of an 80 column computer card. Next, the keying-in is performed using the computer sheets. Neither procedure is inherently superior and the choice depends on the quality control procedures generally followed by the office performing the data processing.

2.3. Data Cleaning

Once the data have been entered into the computer final checks are made for stray or incorrect codes and logical inconsistencies. The process involves two steps; first, errors need to be identified, and second, the data file needs to be corrected or updated. We suggest that the first checks on the data file be made by eye. This can be accomplished by producing a set of marginal frequencies on all variables. Using the codebook, the frequencies should be checked for valid codes.

The next step in data cleaning is the computer check for valid codes and logical consistency. When non-valid codes or logical inconsistencies are found it is necessary to pull the original questionnaire and coding sheet to determine the source of the error. It is unlikely that the error can be attributed to the respondent since the questionnaire is precoded. The source of the error is most likely to be in the coding and computer entry stage, since the editing is designed to catch obvious interviewer errors. The following are illustrative examples of check and retrieval procedures.

<u>Example 1</u> A 0 appears as a code in V0151.

Action: Check card 1, column 51 for any code 0.

Program:

```
COLUMN 1          COLUMN 16
*SELECT IF        (V0151 EQ 0)
LIST CASES        CASES = 200/VARIABLES =
                  V0102**
```

Result: A list of all cases with the invalid code will be printed.

<u>Example 2</u> A check is run for codes falling out of the valid range on V0206.

Action: Check for codes greater than 20 and less than 98.

Program:

```
COLUMN 1          COLUMN 16
*SELECT IF LIST   (V0206 GT 20 AND LT 98)
CASES             CASES = 200/VARIABLES =
                  V0102, V0206 **
```

<u>Example 3</u> A check is made for logical consistency in the skip pattern between two questions.

Action: Check for a deviation in the logical relationship of 2 questions. If V0151 is NO or NO ANSWER, that answer should not be specified in V0152.

Program:

```
COLUMN 1          COLUMN 16
*SELECT IF LIST   ((V0151 EQ 2 or 9) and
CASES             (V0152 NE 9))
                  CASES = 200/VARIABLES =
                  V0102, V0152**
```

**In SPSS in order to perform a LIST CASES a statistical procedure must follow. An economical procedure is CONDESCRIPTIVE. In Example 1 the command would be stated:

```
COLUMN 1          COLUMN 16
CONDESCRIPTIVE    V0102
```

2.4. The Data File

The preplanned format of the SPSS data file is contained in Appendices 1, 2, and 3.

The DATA LIST (Appendix 1) provides the location, by card and column number, of each data element.

VAR Labels (Appendix 2) are the labels or names of each of the coded data elements. These labels will appear in the computer output regardless of the procedure performed, unless they are specifically deleted.

VALUE LABLES (Appendix 3) appear for all coded values. MISSING VALUES are used to designate those codes which are automatically deleted from statistical procedures.

3. Analysis and Interpretation

The computer printout we will provide will be in an SPSS format. SPSS (Statistical Package for the Social Sciences) is a package of canned or pre-made programs which have the capability of generating a wide range of procedures from simple arithmetic functions to highly complex statistical procedures. For example, frequency distributions routinely include useful statistical descriptions such as numerical values for the mean, mode, median, standard deviation, and range. SPSS allows for the inclusion of variable and value labels on the output which greatly facilitates reading and the utilization of printout results by people who may not be familiar with computer output print format. Your output will include all the basic variable and value labels. A coding manual specifying the exact content and location of the data elements on the computer file is included with this narrative.

We encourage you to obtain and use the SPSS Manual while working with your survey results. That volume is referenced as follows:

SPSS: Statistical Package for the Social Sciences (second or most recent edition) Nie, Norman H., and others. New York: McGraw-Hill, 1975.

Organization of the Data

The questionnaire is organized around four main information content areas.

of those areas is intended to gather related data elements. The areas

described as follows:

Overall Area Evaluation (QQ. 2,3,4,5)

This section of items is intended to probe overall and specific subjective evaluation of the quality of the respondent's immediate neighborhood or area. The items start out with a very openended format and conclude with a specific inquiry about noise in Q.4.A.C. and Q.5. We would expect that respondents who are negative about the quality of living in their neighborhoods to feel differently about the noise situation than respondents who are positive about the quality of life in the area.

Noise Annoyance (QQ.6,7,8,9,10,11)

This critical section comprises the bulk of the questionnaire. Several of the questions can be used as composites to generate indices of noise related problems. Items include the relative annoyance from noise and move in a funnel sequence to increasing detail about the effects and sources of noise annoyance. Here we will learn how much people are bothered by noise and their perceptions of the sources of bothersome noise.

Political Reaction to Noise (QQ. 12,13,14,15,16)

In this section we explore how people have reacted or would like to react to the noise situation in their respected area. The questions funnel in on the value of a noise control program and what such a program might best include.

Respondent Characteristics (QQ. 1,17,18,19,20)

This section provides basic demographic information about the respondent. We inquire about the respondent's age, education, and income. One can easily imagine various ways in which people's annoyance from noise might vary with those variables. For example, a wealthy person might live on a larger lot and therefore be more protected from street noise than a less affluent person. We also inquire about how long the person has lived in the area. Newcomers may feel quite differently about noise than people who have lived in the area for five or more years. How about age? Should we explore if perceptions of the noise problems are related to the respondents' ages?

3.2. Descriptive Statistics

We recommend that SPSS frequencies be run on all variables. These frequencies will likely constitute the data of primary value to be generated by the survey. In addition frequencies must be examined prior to performing more elaborate procedures. According to the SPSS manual (p. 198), the frequencies generated will include the following features:

1. The value labels whenever present.
2. The raw or absolute frequencies associated with each value.
3. The relative frequencies with missing values included in the percentages.
4. Adjusted relative frequencies with missing values excluded from the percentage base.
5. The cumulative adjusted frequency based on nonmissing values.

SPSS provides for a variety of statistics to be performed with each frequency distribution. For maximum coverage of possible interest we recommend that all the statistics be requested. The following information will be output:

1. Mean
2. Standard error
3. Median
4. Mode
5. Standard deviation
6. Variance
7. Kurtosis
8. Skewness
9. Range
10. Minimum
11. Maximum

The SPSS program for this procedure is:

```
Col.                           Col.

 1                             16
FREQUENCIES                    GENERAL = V0122 TO
                                         V0176, V0206, TO V0226
STATISTICS                     ALL

OPTION                          9
```

OPTION 9 will cause a dictionary of the location of each frequency distribution to be printed. The dictionary will come in handy when you are trying to locate specific variables.

3.3. Composite Variables

While most of the individual items in the questionnaire provide useful information, in several instances it is valuable to combine individual items to make indexes, composites, or created variables. These new variables are constructed from combinations of original variables.

Here again, the construction and use of composite variables is dependent upon the distributions of the component variables. Therefore, Step 1 continues to be a careful review of the marginal distributions of variables, before making combinations. If responses to a specific variable are unidirectional, that is there is little or no variation or difference in responses, that variable should not be included in a composite. The reason for not using such a variable is that without variation a variable does not add any information. If you know that all people will answer a question in a given way you need not ask the question.

Based on a review of a small data set we have suggested the construction of a few composite variables. Ultimately the usefulness of these and other composites in analyzing the results from your community survey will depend on, (1) the questions you want answered, and (2) the marginal distributions of variables being considered.

The following chart lists the preliminary composites we are suggesting for consideration.

COMPOSITE VARIABLE	COMPOSITION	POSSIBLE USE
INTERFER	V0147 to V0150 (All items enumerating possible interference due to noise.)	Index of perceived impact or noise on daily life.
HEALTH	V0154 to V0150 (All items enumerating possible health effects attributed to noise.)	Index of magnitude of health effects attributed to local noise.

3.4. Crosstabular Analyses and Correlations

Following the examination of frequency distributions of unit and composite variables, more detailed analysis of selected variables will be desired. Here selected relationships between variables are explored. This can be done by looking at tables comparing two variables (cross tabulations) and by examining interrelationships (correlation matrices). These procedures provide information about the way one variable changes in relation to another (e.g. how is noise annoyance related to age, presence of children, or geographical location in the community?)

Crosstabular analyses (crosstabs) do not require the same distribution characteristics as Pearson Product Moment correlations, in general they are less stringent. Crosstabs should only be performed when variables have no more than five levels or answer categories; fewer categories are preferable. For example you would not crosstab a variable like AGE OF RESPONDENT with another variable coded YES or NO. If you wanted to perform that analysis you should recode AGE into a few categories, e.g., YOUNG, MIDDLE, OLD, and then perform the crosstabular analyses. Often an interesting use of crosstabs is examining the effect of respondent characteristics on responses. The following is a partial list of crosstabs which might be performed in order to see how opinions vary by respondent groups.

EDUCATION LEVEL (V0222) X INTERFER
(This analysis will show if the amount of perceived
impact of noise on daily life is related to the
respondent's level of education.)

EDUCATION LEVEL (V0222) X HEALTH
(This analysis follows the same rationale
as the crosstabs with INTERFER.)

TOTAL FAMILY INCOME (V0224) X INTERFER
TOTAL FAMILY INCOME (V0224) X HEALTH

MONTHS OF RESIDENCE (V0122)
(Divided into categories) X OVERALL LOCAL NOISE (V0140)

Some correlational analyses which might be applied are listed below.

VARIABLES	PURPOSE
V0132 to V0139 (All)	Examination of the relationships among possible problems in the area, e.g. is the traffic problem related to the noise problem?
V0125 with V0140 and V0141	Is the general evaluation of the area (V0125) related to overall noise in the area (V0140) or overall annoyance caused by noise (V0141)?
HEALTH with V0159	Is the impact of noise on health related to people's overall well-being?

3.5. Regression Analyses

Multiple Regression represent the most advanced analytic technique being recommended. In multiple regression analysis, a number of independent variables are assumed to influence a single dependent variable. The analysis takes the form of

$$y = a_1x_1 + a_2x_2 + a_3x_3 + \dots a_n x_n + C + e$$

where

$a_1 \dots a_n$ are regression coefficients,

$x_1 \dots x_n$ are variables,

C is a constant, and

e is the error term.

For example, consider the determinants of noise annoyance. How much is annoyance due to the actual physical noise level around an individual's residence? How much is it due to the individual's age (older persons may be more sensitive)? How much is it due to the individual's educational background (e.g., a more educated individual may be more aware of the problems of noise)? A regression equation having all three of these possible causes (physical noise level, age, and education) as independent variables and annoyance as the dependent variable could facilitate this analysis. It would tell how much each of the individual variables contributes to the overall annoyance in relation to the other variables. It may be the case, for example, that the physical noise level is the dominant variable and the social variables are unimportant. Or that age may be extremely important, but that education is not. Certainly, then, the interpretation of the results is complex. To simplify the analysis, a stepwise regression procedure can be used in which only the most significant independent variables are brought into the equation - one step at a time. Thus, only the most salient explanatory factors would be identified.

An example of a possible regression analysis is presented below.

DEPENDENT VARIABLE	PREDICTOR VARIABLES	PURPOSE
General Evaluation of the Area (V0125)	Problem-Traffic (V0132) Problem-Polluted Water (V0133) Problem-Noise (V0134) Problem-Crime (V0135) Problem-Run Down Sections (V0136) Problem-Unclean Air (V0137) Problem-Inadequate Parking (V0138) Problem-Inadequate Public Services (V0139)	The purpose of this analysis is to assess the relative impact of various perceived problems on the general evaluation of the area.

3.6. A Note on Reporting

The purpose of conducting the Community Noise Survey is to obtain information about citizens' perception of local noise conditions. The value of effort will depend on your ability to communicate and disseminate the results to your intended audiences. The key to successful reporting is knowing the purpose to which the results are intended and the people for whom the results are intended. Is the study being conducted to gather general information of interest to the general public, or are the results intended to impinge on some specific public decision-making?

Once you have determined why and for whom you are reporting strive for clarity and brevity. Statistics are often best handled in appendices with key figures being presented in the text with a minimum of qualifying numbers such as significance levels. When tables are presented the key information contained in the tables should be discussed in the text. The extent of such discussion will depend on the purpose of the report and the importance of the information.

Finally, we recommend that you preview your report with a small group of reviewers before going forward with a large scale dissemination/publication.

4. Community Environment Study Questionnaire
Basic Data File

LOCATION CARD	COLUMN	QUESTION #	CONTENT VARIABLE LABEL
1	13-14	Cover Sheet	Length of Interview
1	22-24	1	Months of Residence at Present Address
1	25	2	General Evaluation of Area
1	(26-31)	(3)	(Three Area Attributes)
1	26-27	3	First Mentioned Area Attribute
1	28-29	3	Second Mentioned Area Attribute
1	30-31	3	Third Mentioned Area Attribute
(1)	(32-39)	(4 A.B.)	(Problems in the Area)
1	32	4 A.B.	Traffic Congestions
1	33	4 A.B.	Polluted Water
1	34	4 A.B.	Noise
1	35	4 A.B.	Crime
1	36	4 A.B.	Run-Down Sections
1	37	4 A.B.	Unclean Air
1	38	4 A.B.	Inadequate Parking

LOCATION			CONTENT
CARD	COLUMN	QUESTION #	VARIABLE LABEL
1	39	4 A.B.	Inadequate Public Services
1	40	5	Overall Noise in Area
1	41	6	Overall Annoyance by Noise
(1)	(42-45)	(7.a.-d.)	(Time of Annoyance by Noise
1	42	7.a.	Morning
1	43	7.b.	Afternoon
1	44	7.c.	Evening
1	45	7.d.	Late Night
(1)	(46-53)	(8.a.-b.)	(Noise Interference)
1	46	8.a.	Sleeping
1	47	8.b.	Conversation or Entertainment at Home
1	48	8.c.	Reading
1	49	8.d.	Resting
1	50	8.e.	Outdoor Activities
1	51	8.f.	Other Activities
(1)	(52-53)	(9.a.-e.)	(Deleterious Noise Effects)
1	54	9.a.	Headaches
1	55	9.b.	Fatigue
1	56	9.c.	Irritation
1	57	9.d.	Hearing Difficulties
1	58	9.e.	Exacerbate Existing Health Problems
1	59	10	General Effect of Noise on Well Being
(1-2)	(60-76; 6-11)	11	(Noise Annoyance by Specific Sources)
1	60	11	Traffic
1	61	11	Motorcycles
1	62	11	Trucks

LOCATION CARD	COLUMN	QUESTION #	CONTENT VARIABLE LABEL
1	63	11	Buses
1	64	11	Automobiles
1	65	11	Sirens or Emergency Vehicles
			Garbage Trucks
1	67	11	Neighbor's Animals
1	68	11	Neighbor's Air Conditioners
			Jet Airplanes
1	70	11	Small Airplanes
1	72	11	Helicopters
1	73	11	Trains
1	74	11	Construction
1	75	11	Commercial or Industrial Equipment
			Noisy Neighbors
1	76	11	Lawn or Garden Equipment
(2)	(6-11)	(11)	(Other Sources of Noise Annoyance)
2	6-7	11	First Other Source of Annoyance
2	8	11	Degree of Other Annoyance
2	9-10	11	Second Other Source of Annoyance
2	11	11	Degree of Other Annoyance
2	12	12	Ever Complained to a Local Official
2	13	13	Ever Felt Like Complain About Noise
2	14	14	Community Need Control Program
2	15	15	William to Pay How Much
(2)	(16-19)		(Noise Control Program Activities)
2	16	16.a.	Nise Fines

LOCATION CARD	COLUMN	QUESTION #	CONTENT VARIABLE LABEL
2	17	16.b.	Curfews
2	18	16.c.	Public Information
2	19	16.d.	Community Planning and Zoning
2	20-21	17	Respondent's Age
2	22-23	18	Education Level
2	24	19	Total FAmily Income
2	25	20	No. Telephone Nos.
2	26	2	Noise Change

5. Coding Manual

COMMUNITY ENVIRONMENT STUDY
TELEPHONE INTERVIEW
CODING MANUAL

CARD ONE

Card	Col.		Content
1	1		Card Number: 1
	2-5		Case Number
			COVER SHEET DATA
	6-12		Telephone Number (PUNCH 7 DIGITS. DO NOT INCLUDE ANY HYPHENS OR AREA CODE).
	13-14		Length of Interview (CODE IN MINUTES FROM TIME BEGAN AND TIME ENDED RECORDED ON COVER SHEET)
	(15-18)		Date of Interview
	15-16		Month 01- January ↓ 12- December 99- No Answer
	17-18		Day of Month 01- One ↓ 31- Thirty-one 99- No Answer
	19-21		Interviewer ID#
			INTERVIEW DATA
	22-24	Q. ①	How long have you lived at your present address? (CODE IN MONTHS. IF YEARS GIVEN, MULTIPLY BY 12. FOR 1 OR 2 DIGIT NUMBERS, ENTER LEADING ZERO[S])

Card	Col.		Content
1	25	Q. ②	I am going to be asking questions about your area. That is, the area within a few blocks of your home. In general, how would you rate the overall quality of the area in which you live? Would you say, it is: 1- very good 2- good 3- fair, or 4- poor 9- No Answer
	(26-31)	Q. ③	What three things do you like about your area? (PROBE FOR THREE) (READ INSTRUCTIONS IN INTRODUCTION BEFORE CODING)
	26-27		First Mentioned Attribute Location/Accessibility 01- Location, good location, unspecified 02- General convenience, unspecified or multiple mentions of three or more of codes 03-09 03- Accessible to stores, shopping 04- Accessible to transportation - close to train station, bus, trolley 05- Accessible to schools 06- Accessible to churches 07- Accessible to recreational facilities - close to parks, beaches 08- Accessible to cultural activities or institutions - close to museums, libraries 09- Accessible to hospitals, medical facilities
	MAKE CARD		17- Other response, relating to location
			Quality of Life 21- Friendly neighborhood,"people are friendly, helpful" 22- Quiet neighborhood - "no noisy traffic" 23- Safe neighborhood - little or no crime - "Feel safe on streets" 24- Clean community -"air is clean" - "streets are clean"
	MAKE CARD		37- Other response relating to quality of life

Card	Col.	Content
1	26-27	Q. 3 (cont'd) Quality of Services

41- Municipal, governmental services are good - specific services not mentioned
42- Good police protection
43- Good fire protection
44- Good trash, garbage collection
45- Streets kept clean and in repair
46- Public transportation good - "buses run frequently"
47- Good hospitals and medical facilities
48- Good schools

MAKE CARD
57- Other response relating to quality of services

MAKE CARD
97- Other good thing not elsewhere specified

CODE 9898 IN COLS.28-31
98- Don't Know for entire question

CODE 9999 IN COLS. 28-31
99- No Answer for entire question

Card	Col.		Content
1	28-29		Second Mentioned Attribute (USE CODES IN COLS. 26-27) 96- No second mention
	30-31		Third Mentioned Attribute (USE CODES IN COLS. 26-27) 96- No third mention

Q. 4A Now let's talk about problems. As I read the following list, tell me if these are or are not problems in your area. First, would you say that ________________ IS A PROBLEM? (ASK QQ.a-b)

B (FOR EACH "YES" IN Q.4A, ASK): HOW SERIOUS A PROBLEM IS (...)? Would you say it is not very serious, moderately serious, very serious or extremely serious?

(QQ. 4A & 4B ARE TO BE CODED IN COMBINATION. WHERE THERE IS A "YES" RESPONSE TO 4A, SLASH OUT THE CODE "1" AND ONLY THE CODE CIRCLED UNDER Q.4B WILL BE PICKED UP BY THE KEYPUNCHER. IF EITHER CODE "2" OR "8" IS CIRCLED UNDER Q.4A, NO CODE WILL BE CIRCLED UNDER Q.4B AND THE KEYPUNCHER WILL PUNCH EITHER "2" OR "8". REMEMBER THAT CODE "1" WILL NEVER BE A VALID CODE FOR THIS QUESTION AFTER IT IS KEYPUNCHED)

Card	Col.		Content
	32	Q.4ABa.	Traffic congestion 2- No it is not a problem ("2" CIRCLED UNDER Q4A ON QUESTIONNAIRE) 3- Not very serious ("1" IN Q.4A & "3" IN Q.4B) 4- Moderately serious ("1" IN Q.4A & "4" IN Q.4B) 5- Very serious ("1" IN Q.4A & "5" IN Q.4B) 6- Extremely serious ("1" IN Q.4A & "6" IN Q.4B) 7- Is a problem but seriousness not specified ("1" CIRCLED IN Q.4A BUT NO ANSWER TO Q.4B) 8- Don't Know ("8" IN Q.4A & Q.4B NOT ASKED) 9- No Answer - (Q.4A & Q.4B BOTH NOT ANSWERED)
	33	Q.4ABb.	Polluted Water (USE CODES IN COL. 32)
	34	Q.4ABc.	Noise (USE CODES IN COL. 32)

Card	Col.		Content
			Q.4A & B (cont'd)
1	35	Q.4ABd.	Crime (USE CODES IN COL. 32)
	36	Q.4ABe.	Run-down sections in need of improvement (USE CODES IN COL. 32)
	37	Q.4ABf.	Unclean air (USE CODES IN COL. 32)
	38	Q.4ABg.	Lack of parking space (USE CODES IN COL. 32)
	39	Q.4ABh.	Inadequate public services, e.g., fire or police protection (USE CODES IN COL. 32)
			The following questions are about noise in your area, that is, within a few blocks of your home. By noise I am referring only to noise outside your house or apartment.
	40	Q.⑤	Would you say your area is: 1- very quiet 2- quiet 3- noisy, or 4- very noisy 9- No Answer
	41	Q.⑥	Now I am going to ask some questions about how noise outside your house or apartment could annoy you. To be annoyed by noise is to be disturbed, stressed or upset by the repeated occurrence of noise. In general would you say you are: 1- not at all annoyed by noise 2- slightly annoyed 3- moderately annoyed 4- very annoyed, or 5- extremely annoyed by noise 9- No Answer

CODE 0'S IN COLS. 42-45

Card	Col.		Content
1	(42-45)	Q. 7	Does noise outside your house or apartment annoy you:
	42	a.	From 7 a.m. to noon? 1- Yes 2- No 9- No Answer 0- Inapplicable,"not at all annoyed" in Q.6 (coded 1 in col. 41) [CODER: NOTE THAT "0" CODES ARE IN OFFICE USE COL. AND ARE TO BE CIRCLED FOR ALL CASES THAT SKIPPED Q.7]
	43	b.	After 12 noon until 6 p.m? (USE CODES IN COL. 42)
	44	c.	After 6 p.m. until 10 p.m.? (USE CODES IN COL. 42)
	45	d.	After 10 p.m. until 7 a.m.? (USE CODES IN COL. 42)
	(46-53)	Q. ⑧	Does noise outside your house or apartment ever interfere with:
	46	a.	Your sleeping ? 1- Yes 2- No 9- No Answer
	47	b.	Your talking or listening to the radio, watching TV, etc.? (USE CODES IN COL. 46)
	48	c.	Your reading? (USE CODES IN COL. 46)
	49	d.	Your resting? (USE CODES IN COL. 46)
	50	e.	Your outdoor activities? (USE CODES IN COL. 46)
	51	f.	Your other activities? (USE CODES IN COL. 46)

Card	Col.		Content
1	(52-53)		Other Activities Specified in Q.8f. (IF NO OTHER ACTIVITIES SPECIFIED CODE 0'S IN COLS. 52-53)
	52		First other activity 1- Eating 2- Studying 3- Working on family accounts, balancing check book
	MAKE CARD		7- Other activity not elsewhere specified
			0- No other activity, coded 2 or 9 in col. 51
	53		Second other activity (USE CODES IN COL. 52)
	(54-58)	Q.⑨	During the past year, has outside noise in your area:
	54	a.	given you headaches? 1- Yes 2- No 3- Don't Know 9- No Answer
	55	b.	made you tired? (USE CODES IN COL. 54)
	56	c.	made you irritable? (USE CODES IN COL. 54)
	57	d.	caused hearing loss or difficulties? (USE CODES IN COL. 54)
	58	e.	caused an existing health problem to get worse? (USE CODES IN COL. 54)

ard	Col.		Content
	59	Q. ⑩	In general, do you think noise in your area is affecting your physical or emotional health and well being? 1- Yes 2- No 3- Maybe 8- Don't Know 9- No Answer
	(60-76)	Q. ⑪	Now I'm going to ask some questions about specific sources of noise outside your house or apartment that could have annoyed you. During the past year, were you not at all annoyed, slightly annoyed, moderately annoyed, very annoyed, or extremely annoyed by noise from: USE CODES GIVEN BELOW FOR CODING ITEMS a - q. 1- Not at all annoyed 2- Slightly annoyed 3- Moderately annoyed 4- Very annoyed 5- Extremely annoyed 9- No Answer
	60	a.	Traffic?
	61	b.	Motorcycles?
	62	c.	Trucks?
	63	d.	Buses?
	64	e.	Automobiles?
	65	f.	Sirens or emergency vehicles?
	66	g.	Garbage trucks?
	67	h.	Neighbors' pets or animals?
	68	i.	Neighbors' air conditioners?
	69	j.	Jet airplanes?
	70	k.	Small airplanes?

Card	Col.	Content
1		Q.11 (cont'd)
	71	l. Helicopters?
	72	m. Trains?
	73	n. Construction?
	74	o. Commercial or industrial equipment?
	75	p. Neighbors' noisy stereos, loud talking, etc.?
	76	q. Lawnmowers, garden equipment?
	77-80	BLANK COLUMNS

END CARD ONE

COMMUNITY ENVIRONMENT STUDY
TELEPHONE INTERVIEW
CODING MANUAL
CARD TWO

Card	Col.	Content
2	1	Card Number: 2
	2-5	Case Number
	(6-11)	Q. ⑪r. What other source of noise annoyed you during the past year?
	6-7 CODE 0'S IN COLS. 8-11	First Other Source 00- No other source 01- Children in neighborhood playing 02- Band practice 03- Neighborhood bar 04- Loudspeaker used in political campaign 05- Street festival, fairs
	MAKE CARD	17- Other source
	8	Were you at all annoyed, slightly annoyed, moderately annoyed, very annoyed or extremely annoyed by noise from (SOURCE)? 1- Not at all annoyed 2- Slightly annoyed 3- Moderately annoyed 4- Very annoyed 5- Extremely annoyed 9- No Answer 0- Inapplicable, no other source (coded 00 in cols. 6-7)
	9-10	Second Other Source (USE CODES IN COLS. 6-7) 00- No other source or no second other source
	11	Were you at all annoyed, slightly annoyed, etc.? (USE CODES IN COL. 8) 0- No other source or no second other source.

Card	Col.	Content
2	12 CODE 0 IN COL.13	Q. ⑫ Have you ever complained to a local official about noise in your area, outside your house or apartment? 1- Yes 2- No 9- No Answer
	13	Q.13. Have you ever felt like contacting a local official to complain about noise outside your house or apartment? 1- Yes 2- No 0- Inapplicable, has complained (coded 1 in col. 12 [CODER: CIRCLE "0" CODE, LABELED "OFFICE USE]
	14 CODE 0 IN COL. 15	Q. ⑭ Do you think the community where you live should have a noise control program to reduce noise level and/or to maintain existing quiet conditions? 1- Yes 2- No 9- No Answer
	15	Q.15. On a yearly basis, how much, if anything, would you be willing to pay in additional taxes, for each member of your household, to have a noise control program: 1- More than $2.00 for each person a year 2- $2.00 3- $1.00 4- $ .50 5- $ .25, or 6- No additional amount 9- No Answer 0- Inapplicable, doesn't think the community should have a noise control program (coded 2 in col. 14) [CODER: CIRCLE "0" CODE, LABELED OFFICE USE"]
	(16-19)	Q. ⑯ If there were a noise control program funded by your community, should the following activities be carried out as part of that program:
	16	a. Fines for making too much noise - for example, people with automobiles and other vehicles having noisy mufflers would be fined? 1- Yes 2- No 8- Don't Know 9- No Answer

Card	Col.	Content
2	17	b. Curfews - for example, working on a construction site would not be permitted in the nighttime or very early morning hours? (USE CODES IN COL. 16)
	18	c. Public information - for example, a program would be started to inform citizens about noise control? (USE CODES IN COL. 16)
	19	d. Community planning and zoning - for example, traffic would be re-routed to reduce noise? (USE CODES IN COL. 16)
	20-21	Q. ⑰ What is your age? (CODE AGE GIVEN UNLESS RANGE OR VAGUE RESPONSE. IN SUCH CASES, CODE "97" AND MAKE CARD)
MAKE CARD		97- Other response 99- No Answer, Refusal
	22-23	Q. ⑱ What was the highest grade in school you completed? 00- No grade completed 01- First grade ↓ 12- Twelfth grade College/Other Post High School Schooling 13 ↓ 16 Post Graduate School 17 ↓ 20 21- More than 20 99- No Answer

Card	Col.		Content
2	24	Q. ⑲	Now, including all the people in this household who are related to you was the total family income before taxed last year, 1979: 1- less than $7,500 2- between $7,500 and $14,999 3- between $15,000 and $24,999 4- between $25,000 and $49,999,or 5- $50,000 or over 9- No Answer, Refused
	25	Q. ⑳	Including this telephone number that I've reached you on, how many different telephone numbers do you have? 1- One 2- Two 3- Three 4- Four or more
		Q.21 IS NOT CODED OR KEYPUNCHED	
	26	Q. ㉒	Do you think that noise in your area has changed for the better, the worse, or not at all within the past year? 1- Worst 2- Not at all 3- Better 0- Not applicable
	27-80		BLANK COLUMNS

END CARD TWO

COMMUNITY ENVIRONMENT STUDY

TELEPHONE INTERVIEW

CODING MANUAL

SCREENING FORM/CALL REPORT

Card	Col.	Content
3	1	Card Number: 3
	2-5	Case Number (For Completed Interviews) (IF NON-INTERVIEW, LEAVE COLS. BLANK)
	6-12	Telephone Number (DO NOT PUNCH AREA CODE OR HYPHEN)
		CALL REPORT
	13	Number of Calls Made 1- One 8- Eight or more 9- Unable to determine
	14-15	Final Result KNOWN ELIGIBLE (CODES 01-07 ARE TO BE USED ONLY IF THERE HAS BEEN CONTACT WITH SOME ONE IN HOUSEHOLD & IT HAS BEEN ASCERTAINED THAT THERE IS A HOUSEHOLD RESIDENT AGE 18 OR OLDER) 01- Completed Interview 03- Call back - R not home/no answer 04- R refused 05- R away for duration 06- R not able 07- Terminated WORKING #, NO SCREENING (CODES 20-25 ARE TO BE USED IF PHONE APPEARS TO BE WORKING NUMBER BUT NO CONTACT HAS BEEN MADE WITH RESIDENTS) 20- Line busy 21- Answering service/recorded message 22- No Answer 23- Refused screening 24- Screening not obtained/not able to be screened 25- Call back to screen

Card	Col.	Content
3	14-15 (cont'd)	NOT A WORKING OR HOUSEHOLD # (CODES 30-32 ARE USED ONLY FOR NUMBERS THAT ARE NOT TO BE CONSIDERED AS PART OF THE SAMPLE) 30- Disconnected/not in service 31- Non-residential 32- Telephone # outside study area KNOWN INELIGIBLE (CODES 40 & 41 ARE USED FOR RESIDENTIAL PHONES WHERE THERE IS NO ONE ELIGIBLE) 40- No one over 17 41- No primary user - none of persons 18 or over in household use this phone more than 50% of the time
	16-19	Interviewer ID#
	20	Selection Table # 1 ↓ 8
	21-22	Number of Persons 18 or Over in Household (COUNT # PERSONS LISTED IN HOUSEHOLD COMPOSITION TABLE)
	23-24	Number of Primary Users (COUNT CODE "1"'S IN COL. D OF HOUSEHOLD COMPOSITION TABLE)
	25-26	Number of Females 18 or Over 00- None 01- One ↓ ...

Card	Col.	Content
3	27	Number of Females - 18-19 0- None 1- One ↓ 8- Eight or more 9- Can't determine
	28	Number of Females - 20-29 (USE CODES IN COL. 26)
	29	Number of Females - 30-39 (USE CODES IN COL. 26)
	30	Number of Females - 40-49 (USE CODES IN COL. 26)
	31	Number of Females - 50-59 (USE CODES IN COL. 26)
	32	Number of Females - 60-69 (USE CODES IN COL. 26)
	33	Number of Females - 70-79 (USE CODES IN COL. 26)
	34	Number of Females - 80 or over (USE CODES IN COL. 26)
	35-36	Number of Males 18 or over 00- None 01- One ↓ ...
	37	Number of Males 18-19 0- None 1- One ↓ 8- Eight or more 9- Can't determine
	38	Number of Males 20-29 (USE CODES IN COL. 36)
	39	Number of Males 30-39 (USE CODES IN COL. 36)
	40	Number of Males 40-49 (USE CODES IN COL. 36

Card	Col.	Content
3	41	Number of Males 50-59 (USE CODES IN COL. 36)
	42	Number of Males 60-69 (USE CODES IN COL. 36)
	43	Number of Males 70-79 (USE CODES IN COL. 36)
	44	Number of Males 80 or over (USE CODES IN COL. 36)
	45-80	BLANK COLUMNS

END CARD THREE

APPENDIX 1

DATA LIST

```
    PAGESIZE        NOEJECT
    DATA LIST       FIXED (2)/1 V0102 2-5 V0106 6-12 V0113 13-14 V0115 15-18
                    V0119 19-21 V0122 22-24 V0125 25 V0126 26-27 V0128 28-29
                    V0130 30-31 V0132 32 V0133 33 V0134 34 V0135 35 V0136 36 V0137
                    V0145 45 V0146 46 V0147 47 V0148 48 V0149 49 V0150 50 V0144 44
                    V0152 52 V0153 53 V0154 54 V0155 55 V0156 56 V0157 57 V0151 51
                    V0159 59 V0160 60 V0161 61 V0162 62 V0163 63 V0164 64 V0158 58
                    V0166 66 V0167 67 V0168 68 V0169 69 V0170 70 V0171 71 V0165 65
                    V0173 73 V0174 74 V0175 75 V0176 76                   V0172 72
                    /2 V0202 2-5 V0206 6-7 V0208 8 V0209 9-10 V0211 11 V0212 12
                    V0213 13 V0214 14 V0215 15 V0216 16 V0217 17 V0218 18 V0219 19
                    V0220 20-21 V0222 22-23 V0224 24 V0225 25 V0226 26
DATA LIST PROVIDES FOR   73 VARIABLES AND   2 RECORDS PER CASE.
AXIMUM OF  76 COLUMNS ARE USED ON A RECORD.
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APPENDIX 2

VAR LABELS

A Listing of Variable Labels

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VAR-LABELS   V0113,LENGTH OF INTERVIEW-IN MINUTES/
             V0122,MONTHS OF RESIDENCE AT PRESENT ADDRESS/
             V0125,GENERAL EVALUATION OF AREA/
             V0126,FIRST MENTIONED AREA ATTRIBUTE/
             V0128,SECOND MENTIONED AREA ATTRIBUTE/
             V0130,THIRD MENTIONED AREA ATTRIBUTE/
             V0132,PROBLEM-TRAFFIC CONGESTION/
             V0133,PROBLEM-POLLUTED WATER/
             V0134,PROBLEM-NOISE/
             V0135,PROBLEM-CRIME/
             V0136,PROBLEM-RUN-DOWN SECTIONS/
             V0137,PROBLEM-UNCLEAN AIR/
             V0138,PROBLEM-INADEQUATE PARKING/
             V0139,PROBLEM-INADEQUATE PUBLIC SERVICES/
             V0140,OVERALL NOISE IN AREA/
             V0141,OVERALL ANNOYANCE BY NOISE/
             V0142,TIME OF ANNOYANCE BY NOISE-MORNING/
             V0143,TIME OF ANNOYANCE BY NOISE-AFTERNOON/
             V0144,TIME OF ANNOYANCE BY NOISE-EVENING/
             V0145,TIME OF ANNOYANCE BY NOISE-LATE NIGHT/
             V0146,NOISE INTERFERENCE-SLEEPING/
             V0147,NOISE INTERFERENCE-CONVERSE..ENTERTAIN/
             V0148,NOISE INTERFERENCE-READING/
             V0149,NOISE INTERFERENCE-RESTING/
             V0150,NOISE INTERFERENCE-OUTDOOR ACTIVITIES/
             V0151,NOISE INTERFERENCE- OTHER ACTIVITIES/
             V0154,NOISE EFFECTS-HEADACHES/
             V0155,NOISE EFFECTS-FATIGUE/
             V0156,NOISE EFFECTS-IRRITATION/
             V0157,NOISE EFFECTS-HEARING DIFFICULTIES/
             V0158,NOISE EFFECTS-EXISTING HEALTH PROBLEMS/
             V0159,NOISE EFFECTS-GENRL EFFECT ON WELL-BEING/
             V0160,NOISE SOURCE-TRAFFIC/
             V0161,NOISE SOURCE-MOTORCYCLES/
             V0162,NOISE SOURCE-TRUCKS/
             V0163,NOISE SOURCE-BUSES/
             V0164,NOISE SOURCE-AUTOMOBILES/
             V0165,NOISE SOURCE-SIRENS-EMERGENCY VEHICLES/
             V0166,NOISE SOURCE-GARBAGE TRUCKS/
             V0167,NOISE SOURCE-NEIGHBORS ANIMALS/
             V0168,NOISE SOURCE-NEIGHBORS AIRCONDITIONING/
             V0169,NOISE SOURCE-JET AIRPLANES/
             V0170,NOISE SOURCE-SMALL AIRPLANES/
             V0171,NOISE SOURCE-HELICOPTERS/
             V0172,NOISE SOURCE-TRAINS/
             V0173,NOISE SOURCE-CONSTRUCTION/
             V0174,NOISE SOURCE-COMMERCIAL-INDUST EQUIP/
             V0175,NOISE SOURCE-NOISY NEIGHBORS/
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V0209,2ND OTHER SOURCE OF NOISE ANNOYANCE/
V0211,DEGREE-2ND OTHER SOURCE/
V0212,EVER COMPLAINED OF NOISE TO OFFICIAL/
V0213,EVER FELT LIKE COMPLAINING OF NOISE/
V0214,FEEL COMMUNITY NEEDS NOISE CONTROL PROG/
V0215,AMOUNT WILLING TO PAY FOR NOISE CONTROL/
V0216,ACTIVITY-NOISE FINES/
V0217,ACTIVITY-CURFEW/
V0218,ACTIVITY-PUBLIC INFORMATION/
V0219,ACTIVITY-COMMUNITY PLANNING AND ZONING/
V0220,RESPONDENT@S AGE-IN YEARS/
V0222,RESPONDENT@S EDUCATION LEVEL-IN YEARS/
V0224,TOTAL FAMILY INCOME/
V0225,NUMBER OF TELEPHONE NUMBERS IN HOME/
V0226,NOISE CHANGE IN AREA/
V0102,CASE NUMBER/
V0106,TELEPHONE NUMBER/
V0115,DATE OF INTERVIEW MONTH-DAY/
V0119,INTERVIEWER ID NO./
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APPENDIX 3

VALUE LABELS

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VALUE LABELS      V0125(1)VERY GOOD(2)GOOD(3)FAIR(4)POOR/
                  V0126,V0128,V0130(01)GOOD LOCATION(02)GENERAL CONVENIENCE(03)CLOS
                  E TO STORES(04)CLOSE TO TRANSPORT(05)CLOSE TO SCHOOLS(06)CLOSE TO
                  CHURCHES(07)CLOSE TO RECREATION(08)CLOSE TO CULTURE ACT(09)CLOSE
                  TO MEDICAL FAC(17)OTHER LOCATION RESP(21)FRIENDLY AREA(22)QUIET
                  AREA(23)SAFE AREA(24)CLEAN COMMUNITY(37)OTHER LIFE QUAL RESP(41)
                  GOOD PUBLIC SERVICES(42)GOOD POLICE PROTECT(43)GOOD FIRE PROTECT
                  (44)GOOD TRASH SERVICE(45)GOOD STREET MAINT(46)GOOD PUBLIC TRANSI
                  T(47)GOOD MEDICAL FAC(48)GOOD SCHOOLS(57)OTHER SERVICES RESP(96)
                  NO MENTION(97)OTHER GOOD RESP(98)ENTIRE DONAT KNOW(99)ENTIRE NO A
                  NSWER/
                  V0132,V0133,V0134,V0135,V0136,V0137,V0138,V0139(2)NO PROBLEM(3)NO
                  T VERY SERIOUS(4)MODERATELY SERIOUS(5)VERY SERIOUS(6)EXTREMELY SE
                  RIOUS(7)PROBLEM-NOT SPECIFIED(8)DONAT KNOW(9)NO ANSWER/
                  V0140(1)VERY QUIET(2)QUIET(3)NOISY(4)VERY NOISY(9)NO ANSWER/
                  V0141(1)NOT ANNOYED(2)SLIGHTLY ANNOYED(3)MODERATELY ANNOYED(4)VER
                  Y ANNOYED(5)EXTREMELY ANNOYED(9)NO ANSWER/
                  V0142,V0143,V0144,V0145(1)YES(2)NO(9)NO ANSWER(0)INAPPLICABLE/
                  V0154,V0155,V0156,V0157,V0158(1)YES(2)NO(3)DONAT KNOW(9)NO ANSWER
                  /
                  V0159(1)YES(2)NO(3)MAYBE(8)DONAT KNOW(9)NO ANSWER/
                  V0160,V0161,V0162,V0163,V0164,V0165,V0166,V0167,V0168,V0169,V0170
                  ,V0171,V0172,V0173,V0174,V0175,V0176(1)NOT ANNOYED(2)SLIGHTLY ANN
                  OYED(3)MODERATELY ANNOYED(4)VERY ANNOYED(5)EXTREMELY ANNOYED(9)NO
                  ANSWER/
                  V0206,V0209(00)NO OTHER SOURCE(01)CHILDREN PLAYING(02)BAND PRACTI
                  CE(03)NEIBORHOOD BAR(04)LOUDSPEAKER-POLITICS(05)STREET FESTIVALS(
                  17)OTHER SOURCE/
                  V0208,V0211(1)NOT ANNOYED(2)SLIGHTLY ANNOYED(3)MODERATELY ANNOYED
                  (4)VERY ANNOYED(5)EXTREMELY ANNOYED(9)NO ANSWER(0)INAPPLICABLE/
                  V0212(1)YES(2)NO(9)NO ANSWER/
                  V0213(1)YES(2)NO(9)NO ANSWER(0)INAPPLICABLE/
                  V0214(1)YES(2)NO(9)NO ANSWER/
                  V0215(1)MORE THAN $2.00 EACH(2)$2.00 EACH(3)$1.00 EACH(4)$.50 EAC
                  H(5)$.25 EACH(6)NO ADDITIONAL AMT(9)NO ANSWER(0)INAPPLICABLE/
                  V0216,V0217,V0218,V0219(1)YES(2)NO(3)DONAT KNOW(9)NO ANSWER/
                  V0224(1)LESS THAN $7,500(2)$7,500-$14,999(3)$15,000-$24,999(4)$25
                  ,000-$49,999(5)$50,000 OR OVER(9)NO ANSWER,REFUSED/
                  V0225(1)ONE(2)TWO(3)THREE(4)FOUR OR MORE(9)NO ANSWER/
                  V0226(1)WORSE(2)NOT AT ALL(3)BETTER(9)NO ANSWER(0)NOT APPLICABLE/
RECODE            V0115(9999)NO ANSWER/
                        V0106 TO V0226          (BLANK=999999)
VAR LABELS        V0152,1ST ACTIVITY SPECIFIED IN V0151/
                  V0153,2ND ACTIVITY SPECIFIED IN V0151/
                  V0202,CASE NUMBER/
VALUE LABELS      V0152,V0153(1)EATING(2)STUDYING(3)RECORD KEEPING(7)OTHER ACTIVITY
                  (0)NO OTHER ACTIVITY/V0216 TO V0219(8)DONT KNOW/
                  V0146 TO V0151(1)YES(2)NO(9)NO ANSWER/
MISSING-VALUES    V0126 TO V0130(99)/V0163,V0214,V0216,V0224,V0225,V0146 TO V0150
                  (9)/V0132 TO V0139(1,   8)/V0154 TO V0158(3)/
                                      V0217,V0218(8)/V0152,V0153,V0206,V0208,
                  V0209,V0211,V0215(0)/V0142 TO V0145,V0151,V0213(0,9)/V0219(8,9)/
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